

# EXHIBIT A

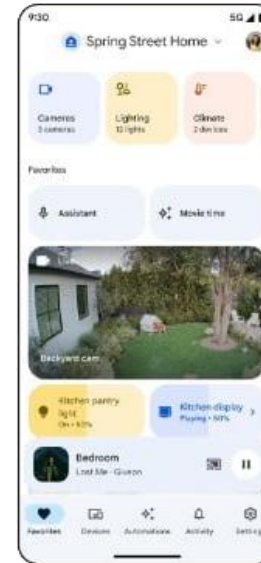
# Google's Opening Statement



**Ken Mackay**  
Software  
Engineer



**Tavis Maclellan**  
Software  
Engineer



**Justin Pedro**  
Engineering  
Manager



**Chris Chan**  
Product  
Manager





**Ken Mackay**  
Software  
Engineer



**Tavis Maclellan**  
Software  
Engineer



- Set timer...
- Set thermostat...
- "Play me the news"
- "Play classical music"
- "Watch the news on my TV"
- "Play Top Gun trailer on my TV"
- "What's today's weather?"
- "Show me photos of Napa on TV"
- "How long will it take to get to Costco?"
- "What's my agenda for today?"
- "Add cereal to my shopping list"
- "Play Lucky Trivia"





Control your home



Control TVs and speakers



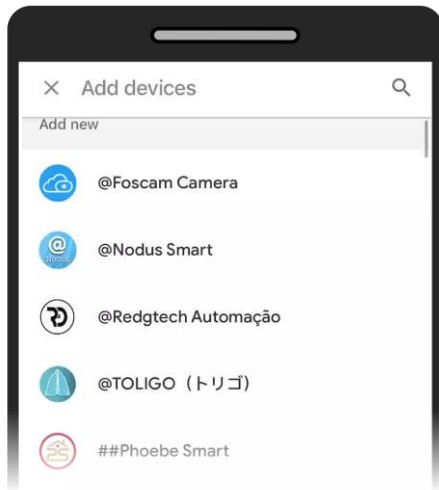
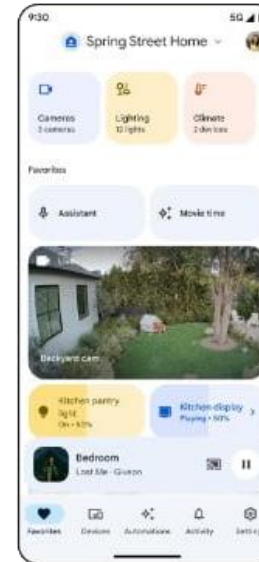
Set Up Routines



Get things done



Google Home



ADT Smart Home



Philips Hue



Honeywell Home



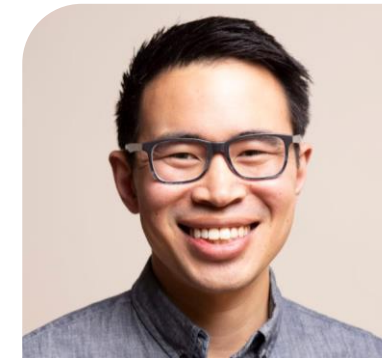
August Home



Panasonic TV



**Justin Pedro**  
Engineering  
Manager



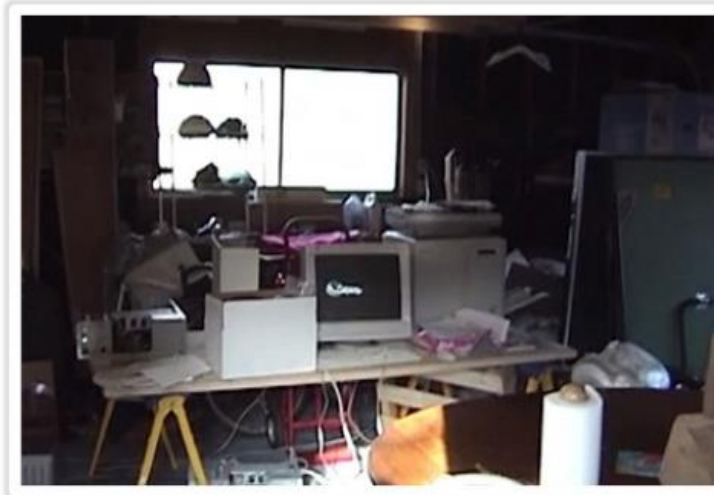
**Chris Chan**  
Product  
Manager

# Google's Mission

- Google was founded in 1998
- **Mission:** to organize the world's information and make it universally accessible and useful.



Google!



# Google's Innovations: Internet of Information

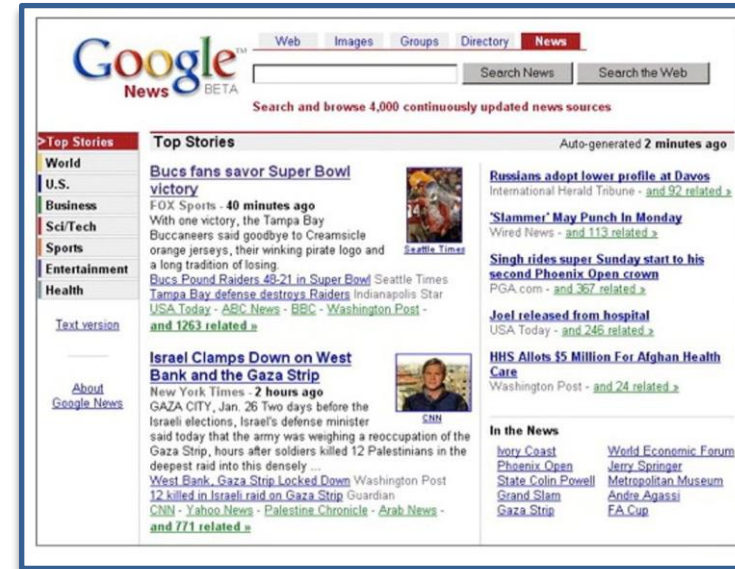
1998:

Google Search

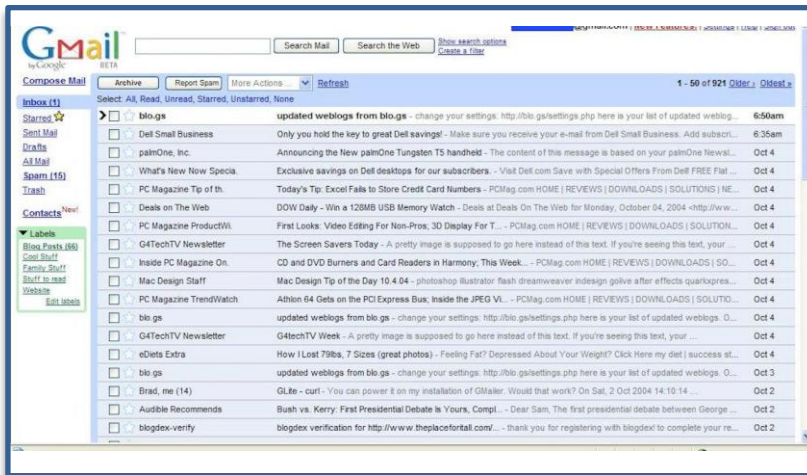


2002:

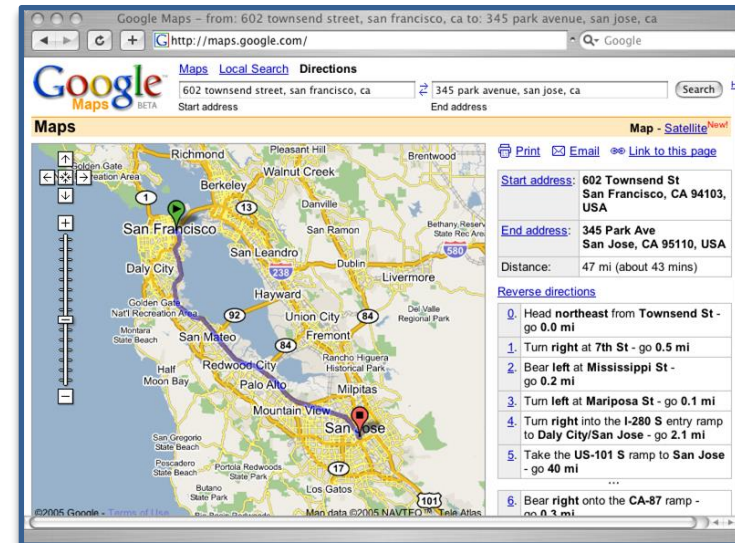
Google News



2004:

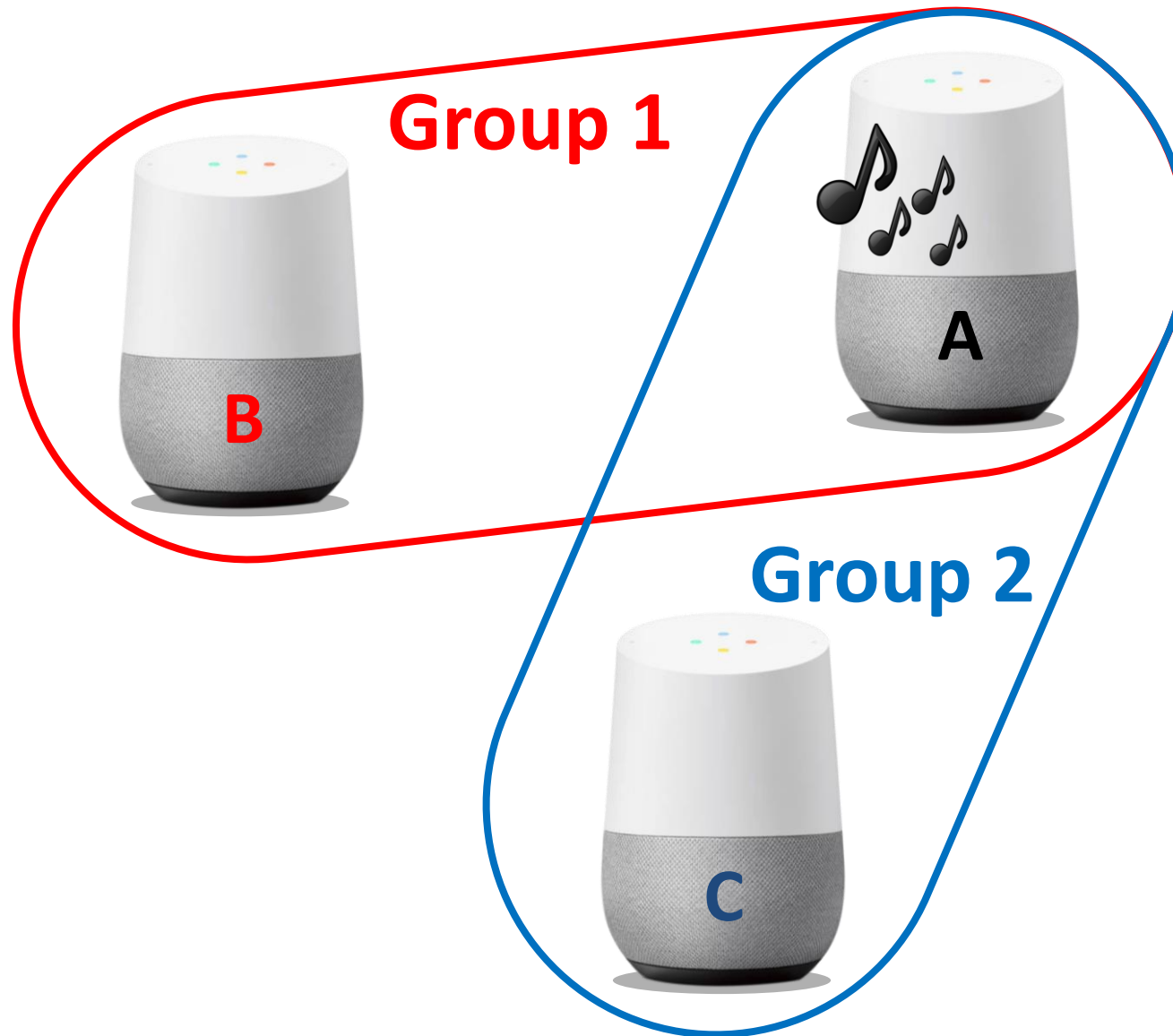


2005:



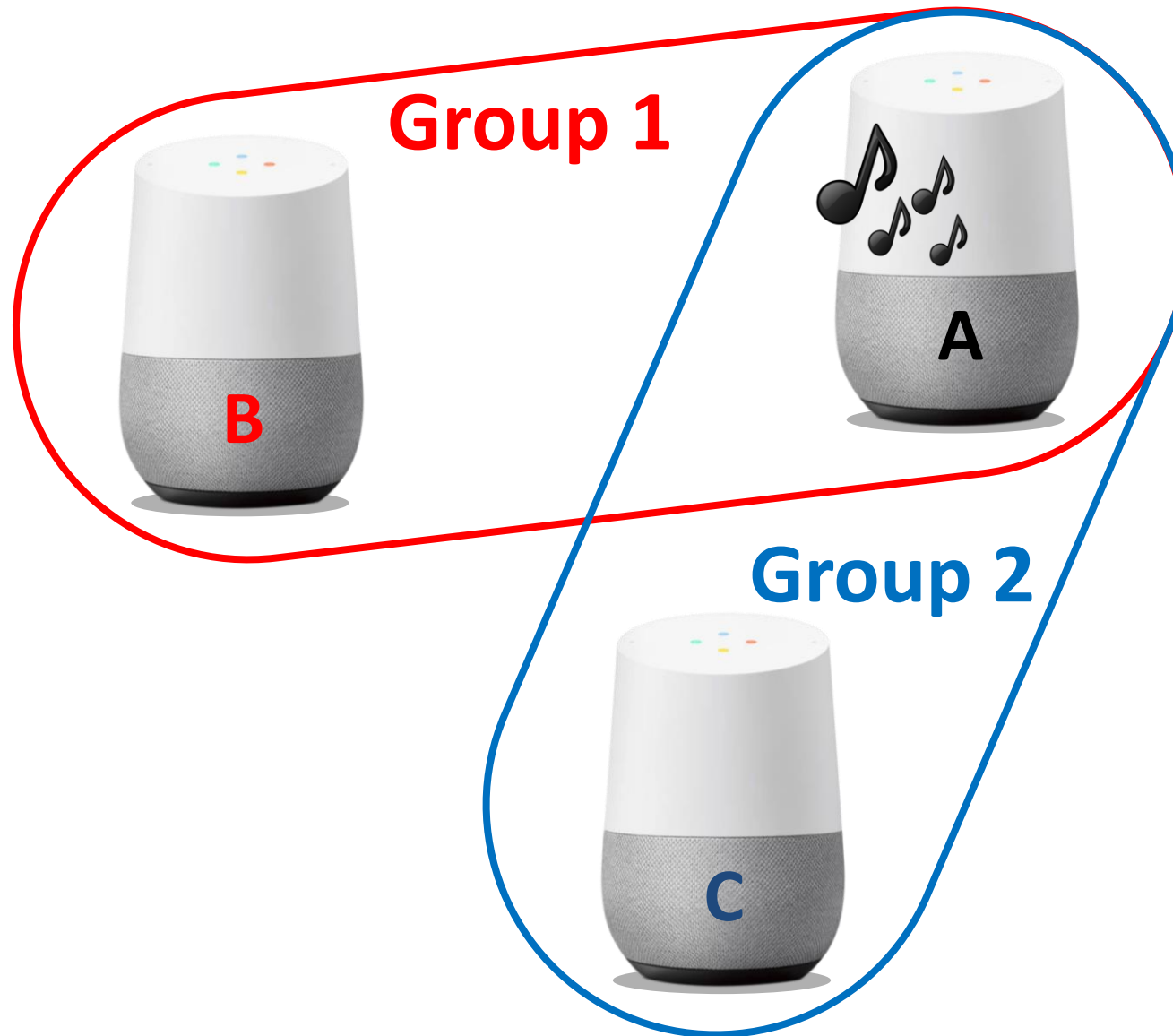


# Sole Accused Feature



**Operating In  
Standalone  
Mode**

# Non-Infringing Feature



# Infringement Questions Left To Be Decided

Infringement?

✓ '885 Patent

✗ '966 Patent



Infringement?

✗ '885 Patent

✗ '966 Patent



Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 11 of 293

# Google's Independent Development



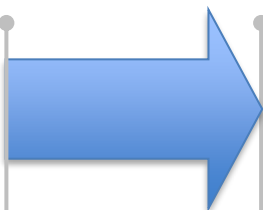
Ken  
Mackay



Tavis  
Maclellan

Development of grouping feature

March



December



Google Home

Nov. 4, 2016  
Google Releases  
Google Home



Nov. 5, 2019  
'966 Patent issued



Nov. 24, 2020  
'885 Patent issued

SONOS

Jun. 2020  
Sonos first  
released  
'885/'966  
patented feature

2015

2016

2017

2018

2019

2020

# Dr. Dan Schonfeld



**Dr. Dan Schonfeld**

Expert Witness

## EDUCATION



### **THE JOHNS HOPKINS UNIVERSITY**

Ph.D. Electrical and Computer Engineering, 1990

M.S. Electrical and Computer Engineering, 1988



### **UNIVERSITY OF CALIFORNIA, BERKLEY**

B.S. Electrical Engineering and Computer Science, 1986

## EXPERIENCE



### **UNIVERSITY OF ILLINOIS AT CHICAGO**

Professor, ECE, CS, Bioengineering Departments (1990 – Current)

Director, University-Industry Engineering Research Center (2008 – 2011)

Co-Director, Multimedia Communications Laboratory (1997 – Current)

Editor-In-Chief, IEEE Trans. On Circuits And Systems For Video Tech. (2014-2017)



# Dr. Dan Schonfeld



**Dr. Dan Schonfeld**  
Expert Witness

## RECOGNITIONS

**SPIE.**  
*Fellow*

 **IEEE**  
*Fellow*

 **SCHOLAR**

IEEE Transactions on Circuits and  
Systems for Video Technology

## RESEARCH



**U.S. Department  
of Defense**



**TEXAS  
INSTRUMENTS**



**MOTOROLA**

Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 14 of 283

# Sonos's Burden of Proof on Infringement

## U.S. Patent



### CLAIM 1:

- Made of leather
- Stitched together
- Filled with compressed air
- Round



## Product



**DOES NOT INFRINGE**



Made of leather



Stitched together



Filled with compressed air



Oval



# Sonos's Zone Scenes Patents



US010848885B2

## (12) United States Patent Lambourne

(10) Patent No.: US 10,848,885 B2  
(45) Date of Patent: \*Nov. 24, 2020

### (54) ZONE SCENE MANAGEMENT

### (56) References Cited

(71) Applicant: SONOS, INC., Santa Barbara, CA (US)

U.S. PATENT DOCUMENTS

(72) Inventor: Robert A. Lambourne, Santa Barbara, CA (US)

3,956,591 A 5/1976 Gates, Jr.  
4,105,974 A 8/1978 Rogers  
(Continued)

(73) Assignee: Sonos, Inc., Santa Barbara, CA (US)

FOREIGN PATENT DOCUMENTS

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.  
This patent is subject to a terminal disclaimer.

C/C

(21) Appl. No.: 16/383,561

Ya

(22) Filed: Apr. 12, 2019

Pr

### (65) Prior Publication Data

US 2019/0239008 A1 Aug. 1, 2019

Pr

### Related U.S. Application Data

(63) Continuation of application No. 15/130,919, filed on Apr. 15, 2016, which is a continuation of application (Continued)

(5

(51) Int. CL  
G06F 17/00 (2019.01)  
H04R 27/00 (2006.01)  
(Continued)

Ar

(52) U.S. CL  
CPC ..... H04R 27/00 (2013.01); G05B 15/02 (2013.01); G06F 3/0482 (2013.01);  
(Continued)

a

(58) Field of Classification Search  
CPC .... H04R 27/00; H04R 3/12; H04R 2227/005; H04R 2430/01; G05B 15/02;  
(Continued)

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pl



US010469966B2

## (12) United States Patent Lambourne

(10) Patent No.: US 10,469,966 B2  
(45) Date of Patent: Nov. 5, 2019

### (54) ZONE SCENE MANAGEMENT

### (56) References Cited

(71) Applicant: SONOS, INC., Santa Barbara, CA (US)

U.S. PATENT DOCUMENTS

(72) Inventor: Robert A. Lambourne, Santa Barbara, CA (US)

3,956,591 A 5/1976 Gates, Jr.  
4,105,974 A 8/1978 Rogers  
(Continued)

(73) Assignee: Sonos, Inc., Santa Barbara, CA (US)

FOREIGN PATENT DOCUMENTS

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

CA 2320451 A1 3/2001  
CN 1598767 A 3/2005  
(Continued)

(21) Appl. No.: 16/383,565

OTHER PUBLICATIONS

(22) Filed: Apr. 12, 2019

Yamaha DME Designer 3.5 user manual (Year: 2004).  
(Continued)

### (65) Prior Publication Data

US 2019/0239009 A1 Aug. 1, 2019

Primary Examiner — Paul C McCord

### Related U.S. Application Data

(63) Continuation of application No. 15/130,919, filed on Apr. 15, 2016, which is a continuation of application (Continued)

### (57) ABSTRACT

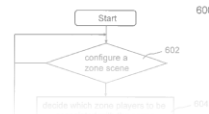
An example computing device in a media playback system receives a first request to create a first zone scene including a first preconfigured grouping of zones including a first zone and a second zone, and based on the first request, causes creation and storage of the first zone scene. The computing device receives a second request to create a second zone scene including a second preconfigured grouping of zones including the first zone and a third zone, and based on the second request, causes creation and storage of the second zone scene. While displaying a representation of the first zone scene and a representation of the second zone scene, the computing device receives a third request to invoke the first zone scene, and based on the third request, causes the first zone scene to be invoked such that the first zone and the second zone become configured for synchronous playback of media.

20 Claims, 13 Drawing Sheets

(51) Int. CL  
G06F 17/00 (2019.01)  
H04R 27/00 (2006.01)  
(Continued)

(52) U.S. CL  
CPC ..... H04R 27/00 (2013.01); G05B 15/02 (2013.01); G06F 3/0482 (2013.01);  
(Continued)

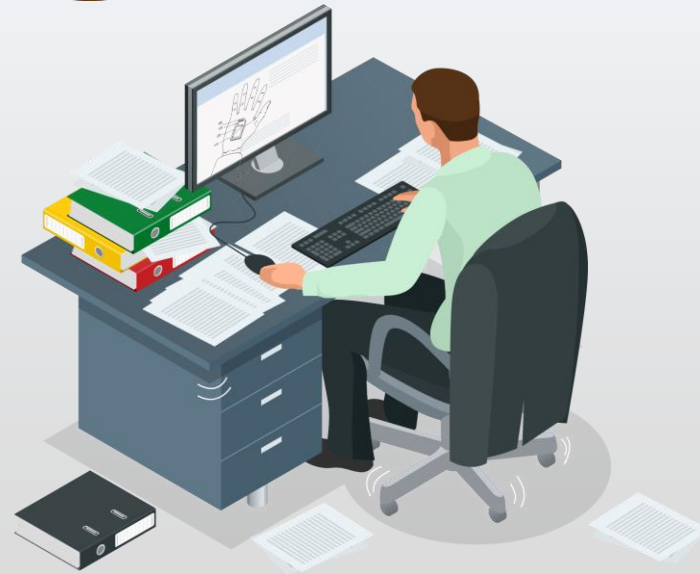
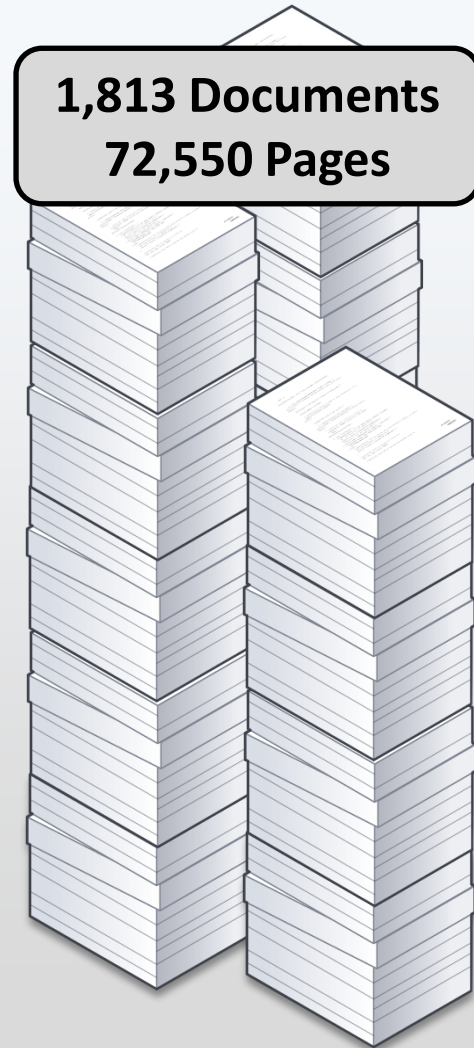
(58) Field of Classification Search  
CPC .... H04R 27/00; H04R 3/12; H04R 2227/005; H04R 2430/01; G05B 15/02;  
(Continued)



Conception Date:  
December 21, 2005

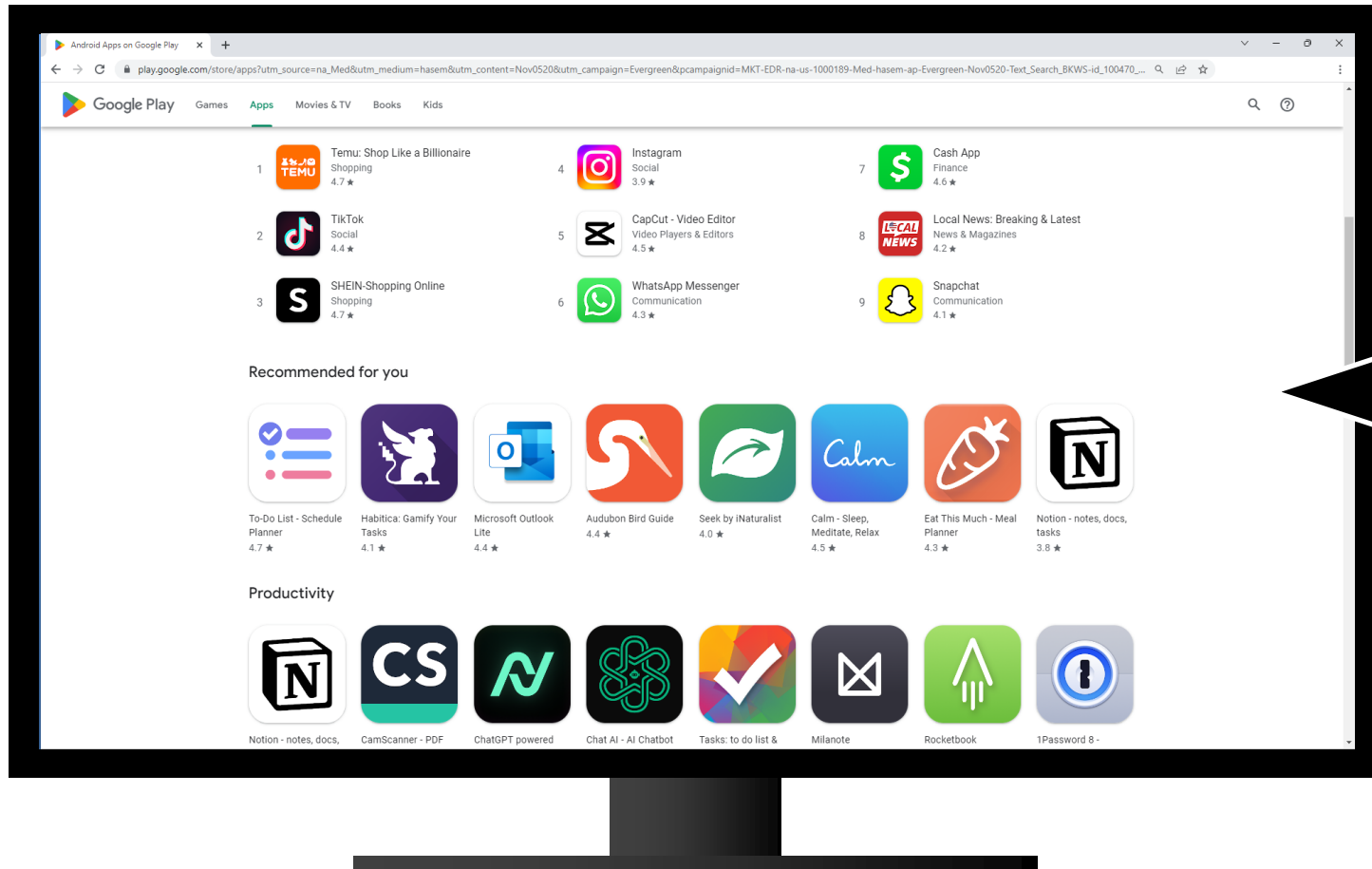
Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 17 of 283

# Evidence Submitted To Patent Examiner





# Source Code



# Sonos's Asserted Claims

US01084885B2

(12) **United States Patent**  
**Lambourne**

(10) Patent No.: US 10,848,885 B2  
(45) Date of Patent: \*Nov. 24, 2020

(54) **ZONE SCENE MANAGEMENT**

(71) Applicant: **SONOS, INC.**, Santa Barbara, CA (US)

(72) Inventor: **Robert A. Lambourne**, Santa Barbara, CA (US)

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.  
This patent is subject to a terminal disclaimer.

(21) Appl. No.: 16/383,561

(22) Filed: Apr. 12, 2019

(65) **Prior Publication Data**  
US 2019/0239008 A1 Aug. 1, 2019

**Related U.S. Application Data**

(63) Continuation of application No. 15/130,919, filed on Apr. 15, 2016, which is a continuation of application (Continued)

(51) **Int. Cl.**  
**G06F 17/00** (2019.01)  
**H04R 27/00** (2006.01)  
(Continued)

(52) **U.S. Cl.**  
CPC ..... **H04R 27/00** (2013.01); **G05B 15/02** (2013.01); **G06F 3/0482** (2013.01);  
(Continued)

(58) **Field of Classification Search**  
CPC .... H04R 27/00; H04R 3/12; H04R 2227/005; H04R 2430/01; G05B 15/02;  
(Continued)

(56) **References Cited**  
U.S. PATENT DOCUMENTS  
3,956,591 A 5/1976 Gates, Jr.  
4,105,974 A 8/1978 Rogers  
(Continued)  
FOREIGN PATENT DOCUMENTS



(12) **United States Patent**  
**Lambourne**

(54) **ZONE SCENE MANAGEMENT**

(71) Applicant: **SONOS, INC.**, Santa Barbara, CA (US)

(72) Inventor: **Robert A. Lambourne**, Santa Barbara, CA (US)

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 16/383,565

(22) Filed: Apr. 12, 2019

(65) **Prior Publication Data**  
US 2019/0239009 A1 Aug. 1, 2019

**Related U.S. Application Data**

(63) Continuation of application No. 15/130,919, filed on Apr. 15, 2016, which is a continuation of application (Continued)

(51) **Int. Cl.**  
**G06F 17/00** (2019.01)  
**H04R 27/00** (2006.01)  
(Continued)

(52) **U.S. Cl.**  
CPC ..... **H04R 27/00** (2013.01); **G06F 3/0482** (2013.01);  
(Continued)

(58) **Field of Classification Search**  
CPC .... H04R 27/00; H04R 3/12; H04R 2227/005; H04R 2430/01; G05B 15/02;  
(Continued)

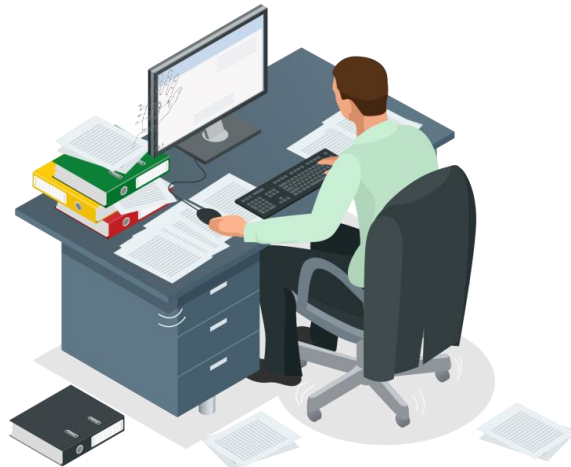
1. A first zone player comprising:  
a network interface that is configured to communicatively couple the first zone player to at least one data network;  
one or more processors;  
a non-transitory computer-readable medium; and  
program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:

1. A computing device comprising: one or more processors;  
a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

# Checks and Balances



and





Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 21 of 283

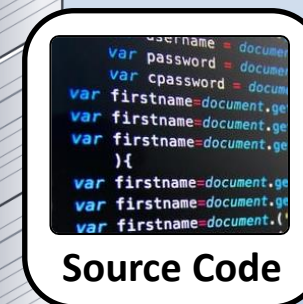
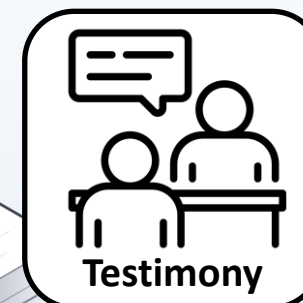
# Google Respects Intellectual Property

Google



Over 31,000 U.S. Patents Issued

# Evidence Presented To Jury



Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 23 of 283

# Validity Questions Left To Be Decided

Invalid?



'885 Patent

US01084885B2

(12) **United States Patent**  
**Lambourne**

(10) **Patent No.:** US 10,848,885 B2  
(45) **Date of Patent:** \*Nov. 24, 2020

(54) **ZONE SCENE MANAGEMENT**

(71) Applicant: **SONOS, INC.**, Santa Barbara, CA (US)

(72) Inventor: **Robert A. Lambourne**, Santa Barbara, CA (US)

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.  
This patent is subject to a terminal disclaimer.

(21) Appl. No.: **16/383,561**

(22) Filed: **Apr. 12, 2019**

(65) **Prior Publication Data**  
US 2019/0239008 A1 Aug. 1, 2019

**Related U.S. Application Data**

(63) Continuation of application No. 15/130,919, filed on Apr. 15, 2016, which is a continuation of application (Continued)

(51) **Int. Cl.**  
**G06F 17/00** (2019.01)  
**H04R 27/00** (2006.01)  
(Continued)

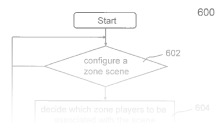
(52) **U.S. Cl.**  
CPC ..... **H04R 27/00** (2013.01); **G05B 15/02** (2013.01); **G06F 3/0482** (2013.01);  
(Continued)

(58) **Field of Classification Search**  
CPC .... H04R 27/00; H04R 3/12; H04R 2227/005; H04R 2430/01; G05B 15/02;  
(Continued)

(56) **References Cited**  
U.S. PATENT DOCUMENTS  
3,956,591 A 5/1976 Gates, Jr.  
4,105,974 A 8/1978 Rogers  
(Continued)  
FOREIGN PATENT DOCUMENTS  
CA 2320451 A1 3/2001  
CN 1598767 A 3/2005  
(Continued)  
OTHER PUBLICATIONS  
Yamaha DME Designer 3.5 user manual (Year: 2004)\*  
(Continued)  
*Primary Examiner* — Paul C McCord

(57) **ABSTRACT**  
An example playback device in a first zone of a media playback system receives a first indication that the first zone has been added to a first zone scene including a first preconfigured grouping of zones including the first zone and a second zone. The playback device receives a second indication that the first zone has been added to a second zone scene including a second preconfigured grouping of zones including the first zone and a third zone. After a given one of the first and second zone scenes has been selected for invocation, the playback device receives an instruction to operate in accordance with the given zone scene, and based on the instruction, begins operating in accordance with the given zone scene such that the playback device is configured to play back audio in synchrony with one or more other playback devices in the media playback system.

20 Claims, 11 Drawing Sheets



Invalid?



'966 Patent

US01046996B2

(12) **United States Patent**  
**Lambourne**

(10) **Patent No.:** US 10,469,966 B2  
(45) **Date of Patent:** Nov. 5, 2019

(54) **ZONE SCENE MANAGEMENT**

(71) Applicant: **SONOS, INC.**, Santa Barbara, CA (US)

(72) Inventor: **Robert A. Lambourne**, Santa Barbara, CA (US)

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

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(21) Appl. No.: **16/383,565**

(22) Filed: **Apr. 12, 2019**

(65) **Prior Publication Data**  
US 2019/0239009 A1 Aug. 1, 2019

**Related U.S. Application Data**

(63) Continuation of application No. 15/130,919, filed on Apr. 15, 2016, which is a continuation of application (Continued)

(51) **Int. Cl.**  
**G06F 17/00** (2019.01)  
**H04R 27/00** (2006.01)  
(Continued)

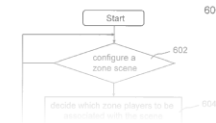
(52) **U.S. Cl.**  
CPC ..... **H04R 27/00** (2013.01); **G05B 15/02** (2013.01); **G06F 3/0482** (2013.01);  
(Continued)

(58) **Field of Classification Search**  
CPC .... H04R 27/00; H04R 3/12; H04R 2227/005; H04R 2430/01; G05B 15/02;  
(Continued)

(56) **References Cited**  
U.S. PATENT DOCUMENTS  
3,956,591 A 5/1976 Gates, Jr.  
4,105,974 A 8/1978 Rogers  
(Continued)  
FOREIGN PATENT DOCUMENTS  
CA 2320451 A1 3/2001  
CN 1598767 A 3/2005  
(Continued)  
OTHER PUBLICATIONS  
Yamaha DME Designer 3.5 user manual (Year: 2004)\*  
(Continued)  
*Primary Examiner* — Paul C McCord

(57) **ABSTRACT**  
An example computing device in a media playback system receives a first request to create a first zone scene including a first preconfigured grouping of zones including a first zone and a second zone, and based on the first request, causes creation and storage of the first zone scene. The computing device receives a second request to create a second zone scene including a second preconfigured grouping of zones including the first zone and a third zone, and based on the second request, causes creation and storage of the second zone scene. While displaying a representation of the first zone scene and a representation of the second zone scene, the computing devices receives a third request to invoke the first zone scene, and based on the third request, causes the first zone scene to be invoked such that the first zone and the second zone become configured for synchronous playback of media.

20 Claims, 13 Drawing Sheets



# Prior Art: Sonos 2005 System

## PRIOR ART



**Jan. 27, 2005**

Sonos releases  
2005 system

**Dec. 2005**

Mr. Lambourne's  
conception date

**SONOS**

**Jun. 2020**

Sonos first  
released '885/'966  
patented feature

2005

2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

# Prior Art: Sonos 2005 System

## SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

6. As part of this ad-hoc grouping technology, Sonos's controller interface also included an "All Zones-Party Mode" option, which was hard-coded into Sonos Controllers (and the Desktop Controller software) and allowed a user to create an-hoc "zone group" comprising all of the ZonePlayers in the user's system with a single touch rather than requiring the user to select each of the ZonePlayers one at a time.

7. This ad-hoc grouping technology is described in the April 2005 User Guide for the Sonos Digital Music System (SONOS-SVG2-00227441 - SONOS-SVG2-00227554):

### *Zone groups*

Two or more zones can be grouped together to form a zone group, which allows you to play the same music across zones. You can also link all the ZonePlayers in your house with one touch by selecting **All Zones-Party Mode**. You can add and drop zones from a zone group while your music is playing.

**TX3923**

## 2015 Email

SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

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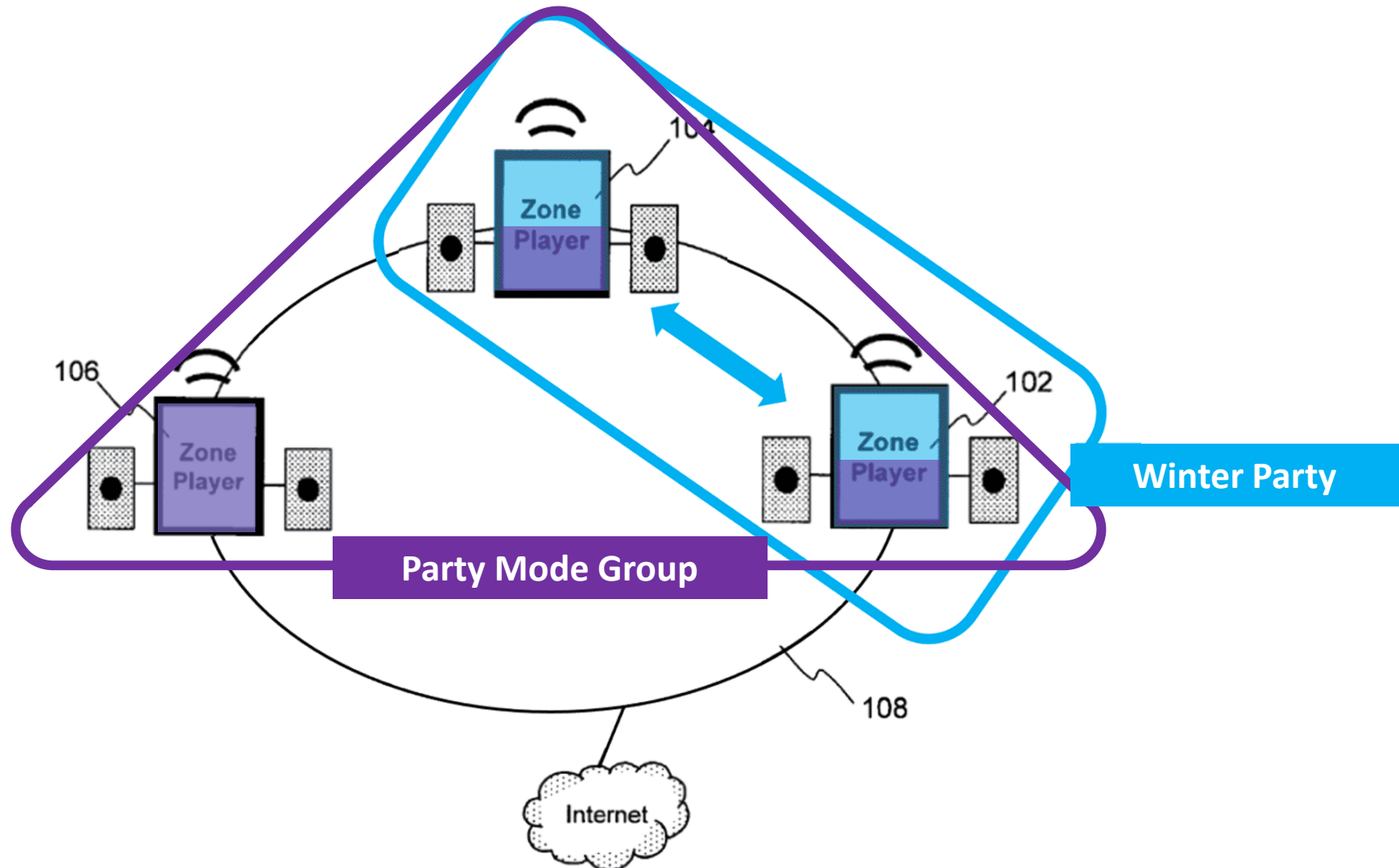
**From:** Rob Lambourne  
**Sent:** Monday, April 11, 2005 3:18 PM  
**To:** Andrew Schulert  
**Subject:** RE: Another UI idea - grouping/ungrouping zones

2. Allow a user to save Zone Profiles (as requested by Tom and others). This would allow a user with one click to put their Zones into predefined groups (think Party-mode, but instead of linking all Zones, certain Zones get grouped). Tom has the experience that he ends most evenings in Party Mode - but most mornings, he wants to link all the 'living spaces', but ungroup the bedrooms (or words to that effect).

TX0120



# Prior Art: Obviousness



# Prior Art: Sonus Forums

16 years ago • 61 replies • 15122 views

22 September 2005



**JeffT** Trending Lyricist I • 20 replies

Just got the intro bundle, and I am impressed. I did a search and did not find this suggested, but I would save Zone links as favorites. With only 2 ZPs it is not a problem yet, but when I add more it maybe. I would like to setup say Morning mode for the units I want in the morning and a preset volume between the units. Another example I would have 2 party modes, Summer and Winter. The Summer mode would include the deck speakers and the Winter mode would not. Also it would be nice to have playlists or radio station associated with each mode. So when I get up I press Morning the DI Chill radio station plays.

**TX3930**



# Prior Art Timeline

## PRIOR ART

Sep 2002  
Nourse



Jan 2005  
Sonos 2005 System



Nov 2005  
Squeezebox



Feb – Sep 2005  
Sonos Forums



July 2004  
Bose



2004  
Yamaha



2005  
Crestron



Dec 2005  
Lambourne's  
Conception  
Date

Sep 2006  
Provisional  
Application  
Filed



**Dr. Dan Schonfeld**  
Expert Witness

2002

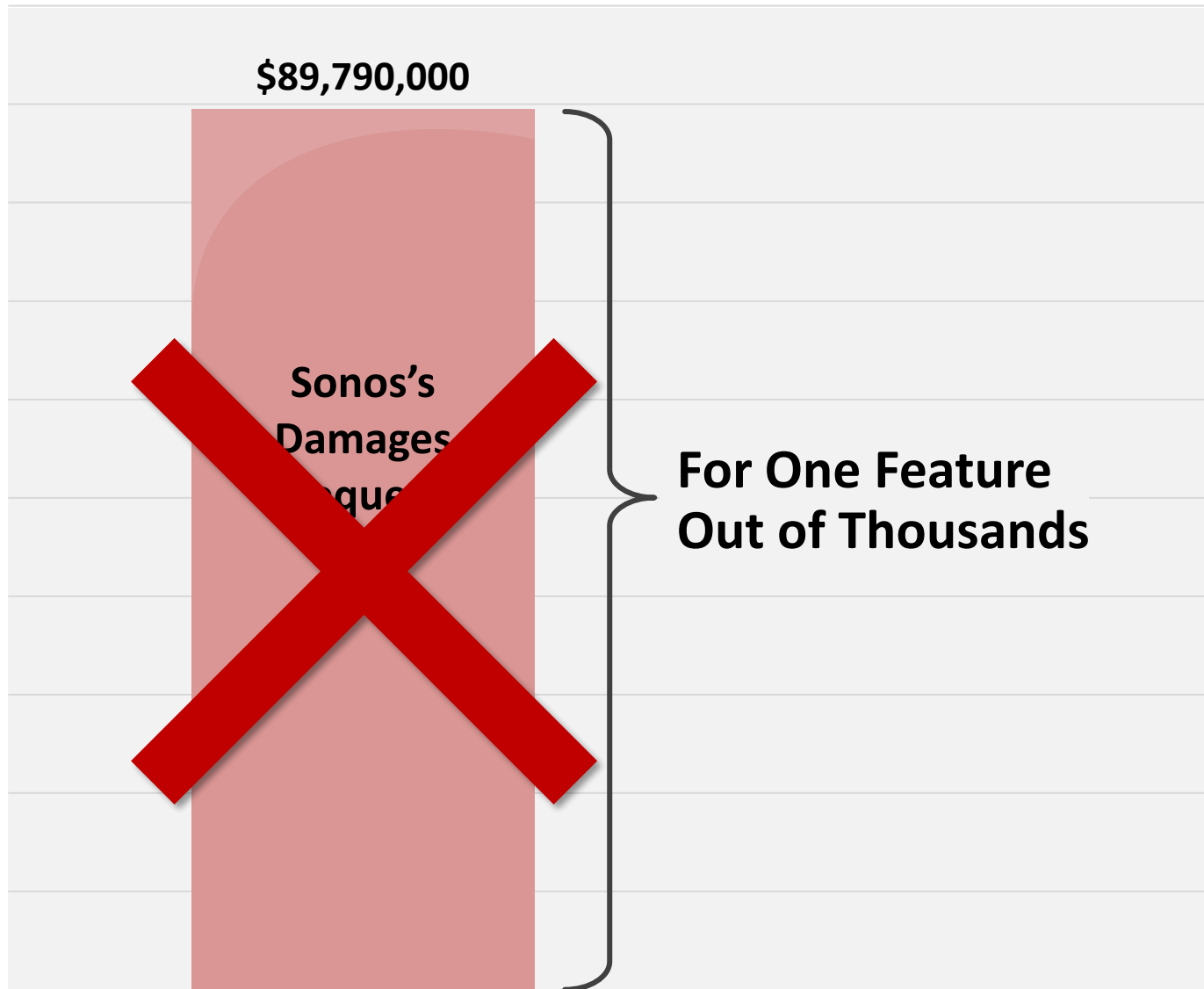
2003

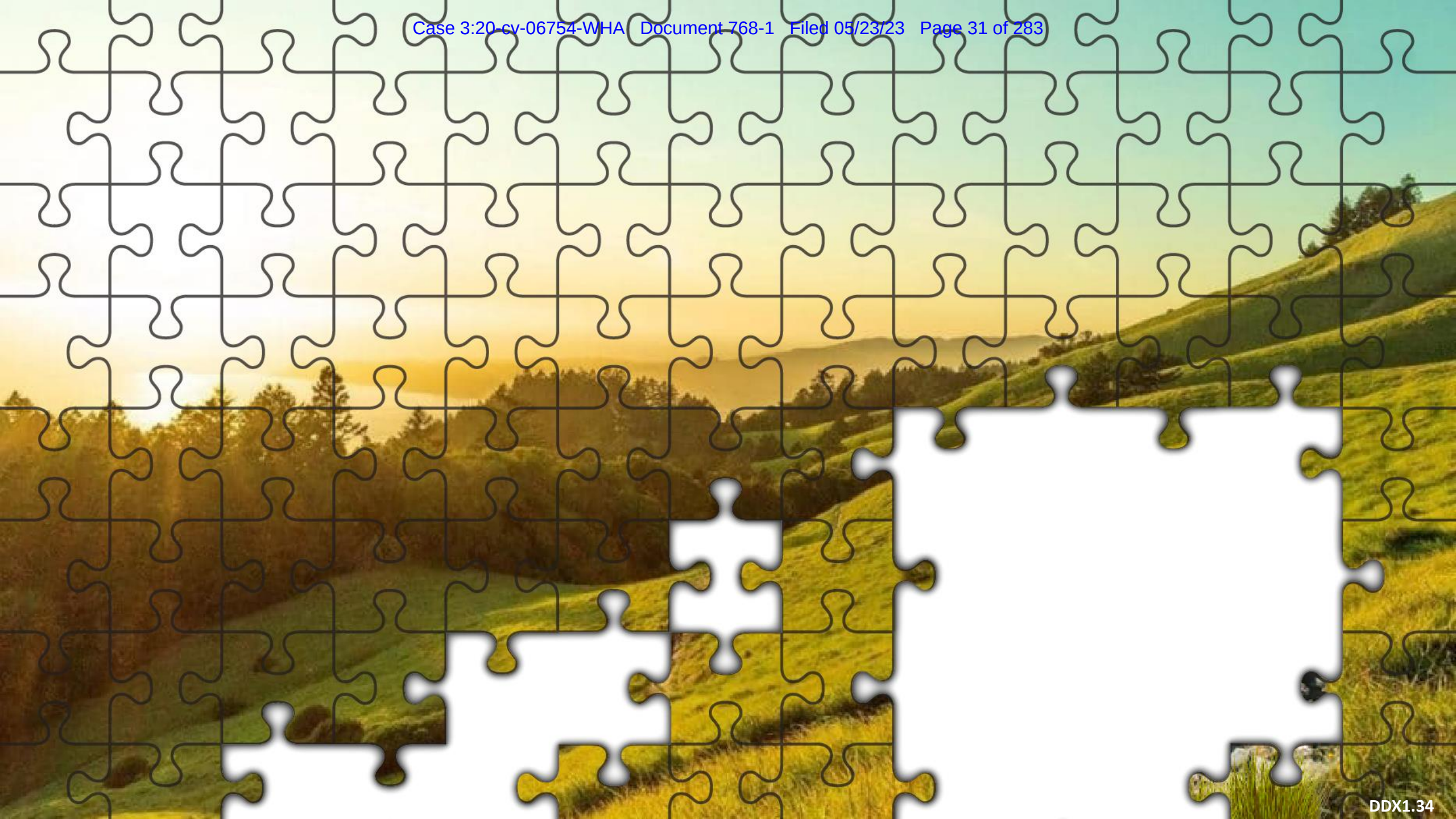
2004

2005

2006

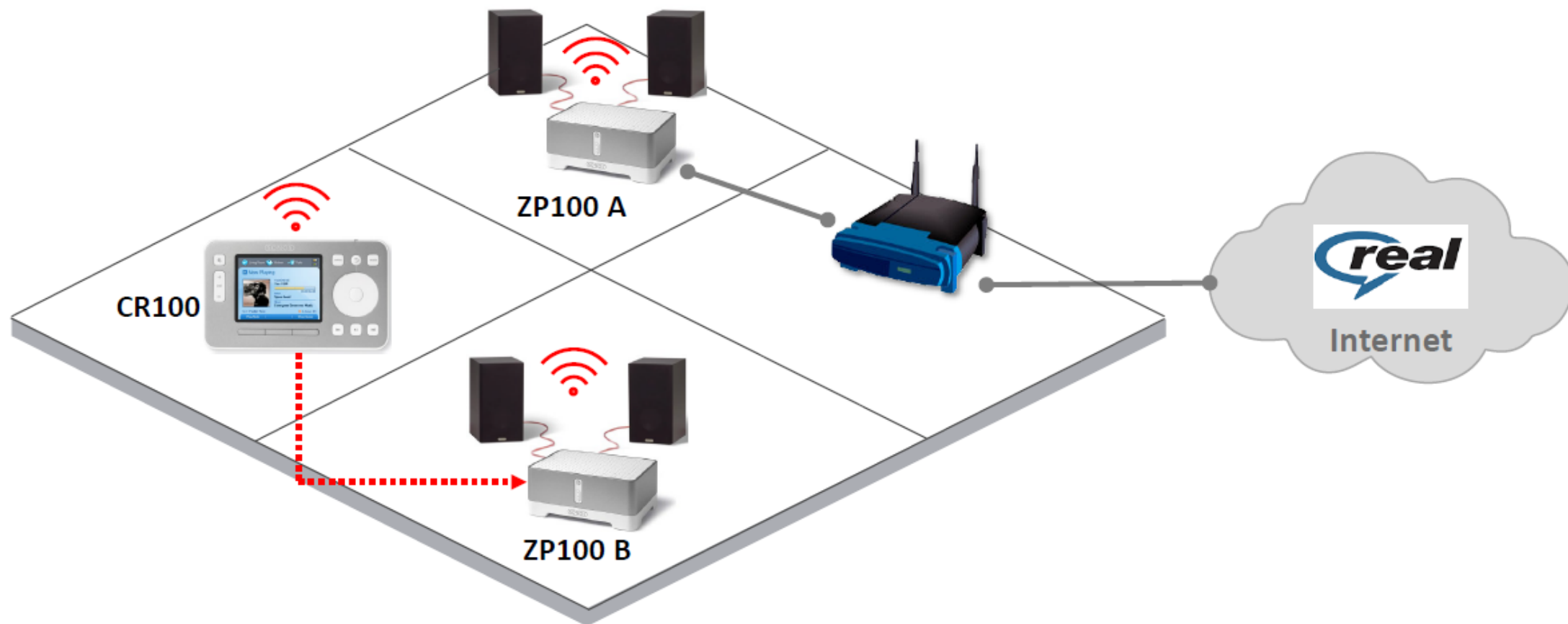
# Sonos's Damages Request



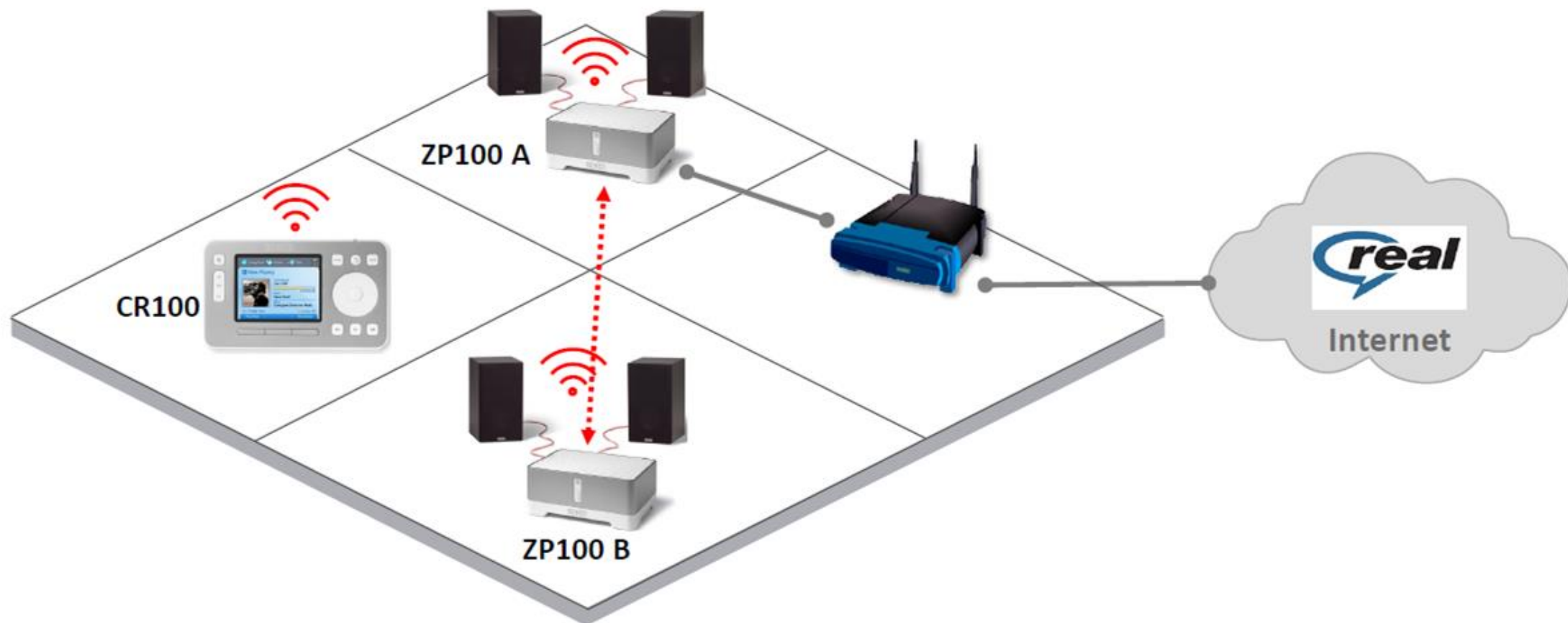


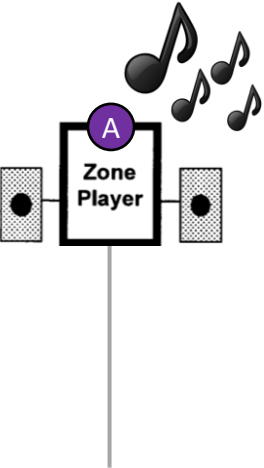




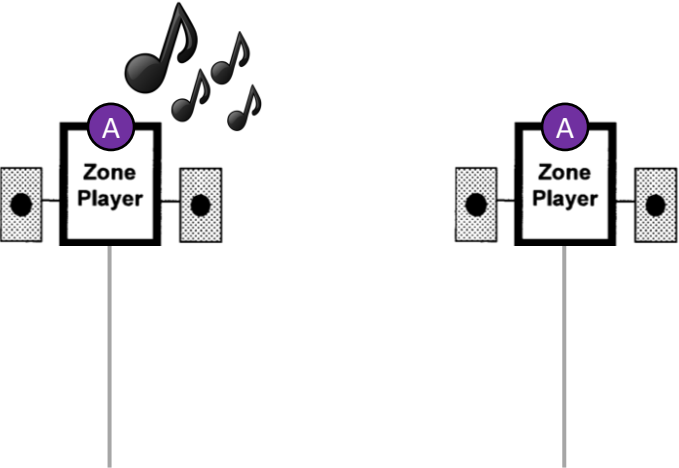






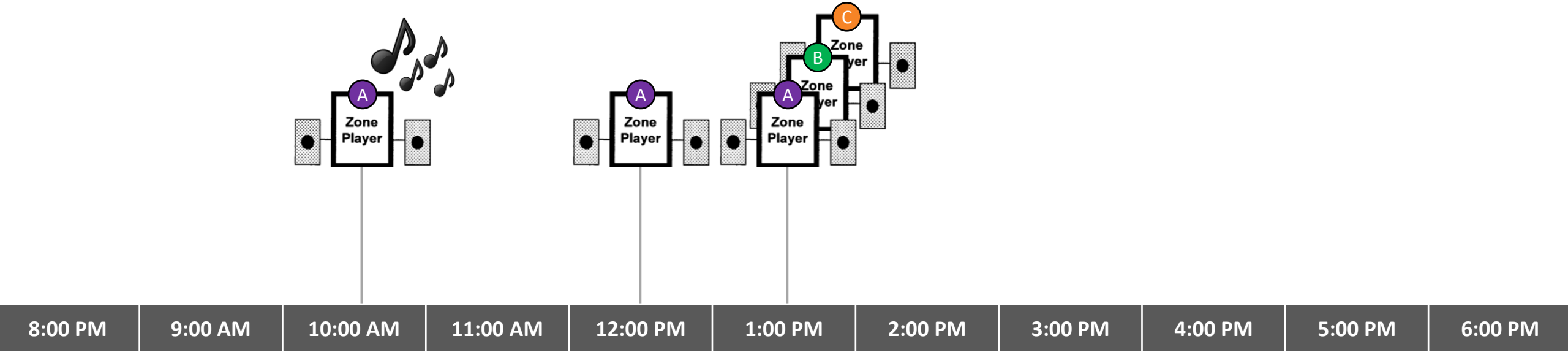


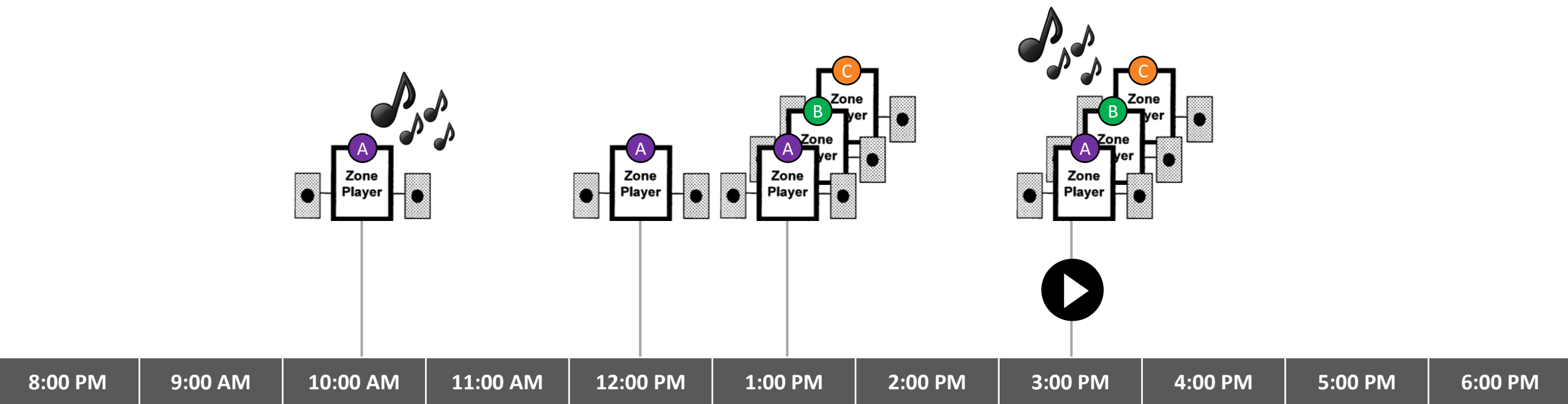
8:00 PM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
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8:00 PM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
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# 865 Patent, Claim 1

**[1.0]** A first zone player comprising:

**[1.1]** a network interface that is configured to communicatively couple the first zone player to at least one data network;

**[1.2]** one or more processors;

**[1.3]** a non-transitory computer-readable medium; and

**[1.4]** program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:

**[1.5]** while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

**[1.6]** (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

**[1.7]** (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

**[1.8]** after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

**[1.9]** after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and

**[1.10]** based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.

# 966 Patent, Claim 1

**[1.0]** A computing device comprising:

**[1.1]** one or more processors;

**[1.2]** a non-transitory computer-readable medium; and

**[1.3]** program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

**[1.4]** while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

**[1.5]** receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;

**[1.6]** based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

**[1.7]** receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

**[1.8]** based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;

**[1.9]** displaying a representation of the first zone scene and a representation of the second zone scene; and

**[1.10]** while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

**[1.11]** based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

## **“Zone Scene”**



previously-saved grouping of zone  
players according to a common theme

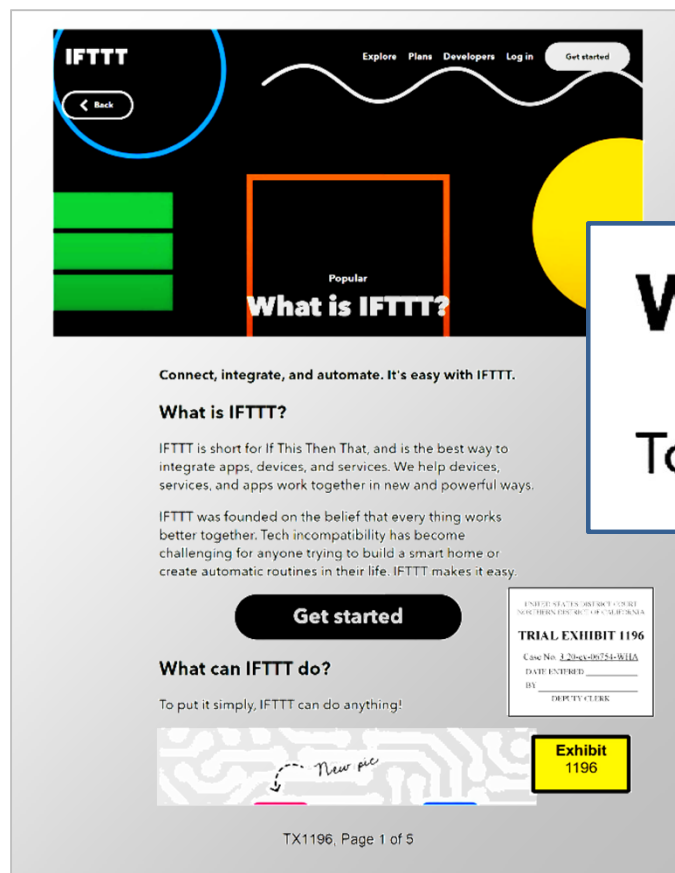


## Income Approach

### Income Approach

Attempts to value a patent by measuring the benefits derived from use of the patent

# IFTTT



**What can IFTTT do?**

To put it simply, IFTTT can do anything!

TX1196

## '885 Patent, Claim 1

**[1.0]** A first zone player comprising:

**[1.1]** a network interface that is configured to communicatively couple the first zone player to at least one data network;

**[1.2]** one or more processors;

**[1.3]** a non-transitory computer-readable medium; and

**[1.4]** program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:

**[1.5]** while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

**[1.6]** (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

**[1.7]** (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

**[1.8]** after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

**[1.9]** after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and

**[1.10]** based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.



# '966 Patent, Claim 1

**[1.0]** A computing device comprising:

**[1.1]** one or more processors;

**[1.2]** a non-transitory computer-readable medium; and

**[1.3]** program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

**[1.4]** while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

**[1.5]** receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;

**[1.6]** based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

**[1.7]** receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

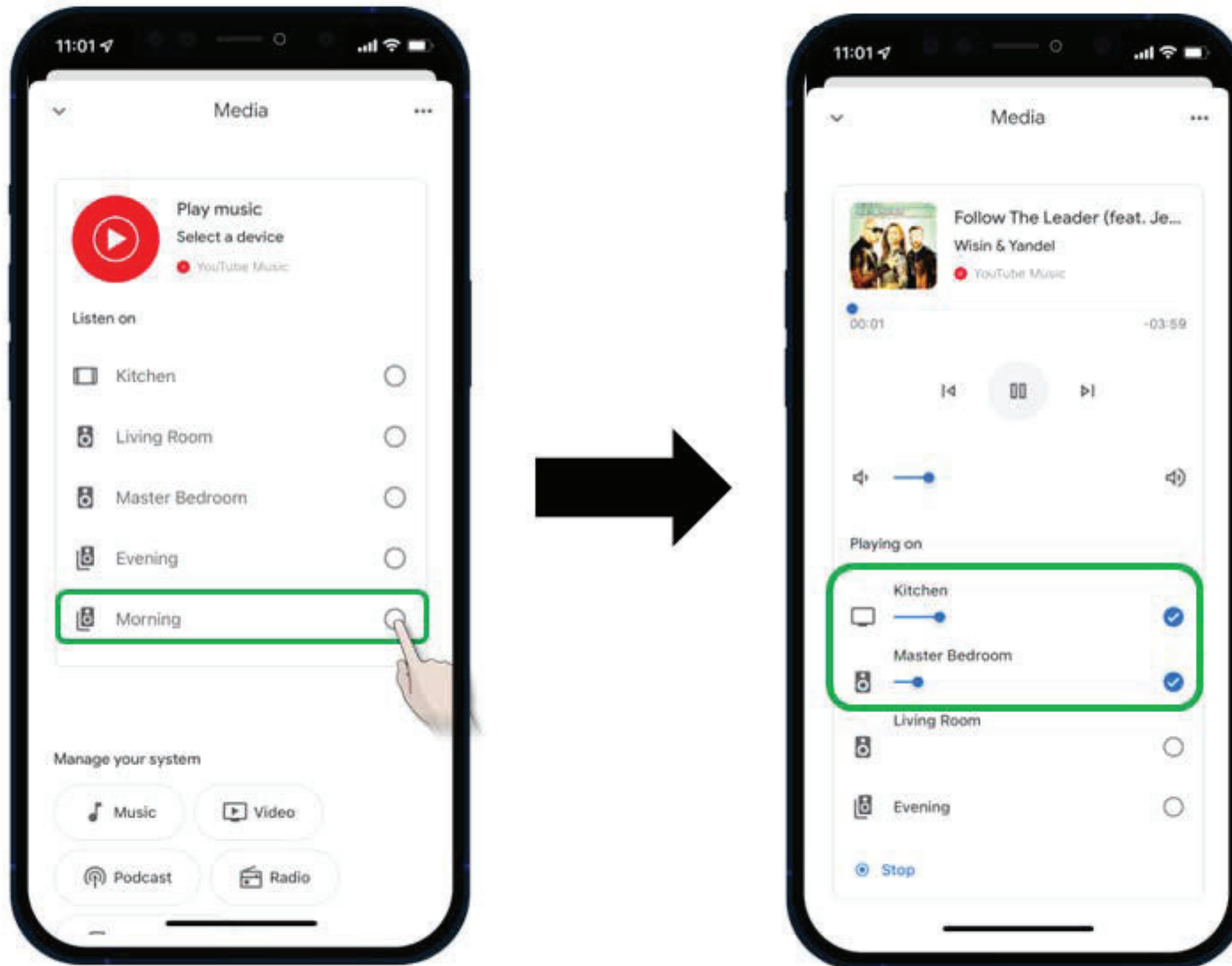
**[1.8]** based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;

**[1.9]** displaying a representation of the first zone scene and a representation of the second zone scene; and

**[1.10]** while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

**[1.11]** based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

# Google's "Speaker Group" Technology



TX0441  
3:20-cv-06754-WHA



PDX2.41





**Nest  
Audio**



**Nest  
Mini**



**Nest  
Hub**



**Nest  
Hub Max**



**Nest Wifi  
Point**



**Chromecast**



**Chromecast  
Ultra**



**Chromecast with  
Google TV**



**Home**



**Home Mini**

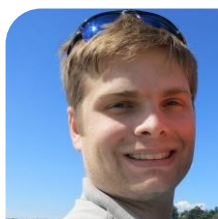


**Home  
Max**

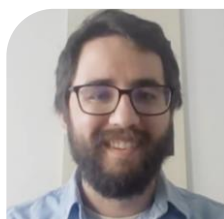


Google

# Google's Development of Speaker Group Functionality



Ken  
MacKay

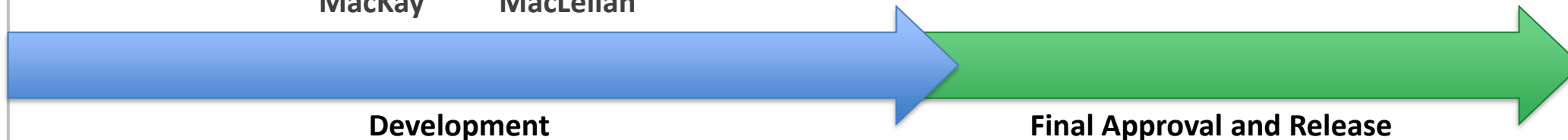


Tavis  
MacLellan



**December 2015**  
Product release

**March**



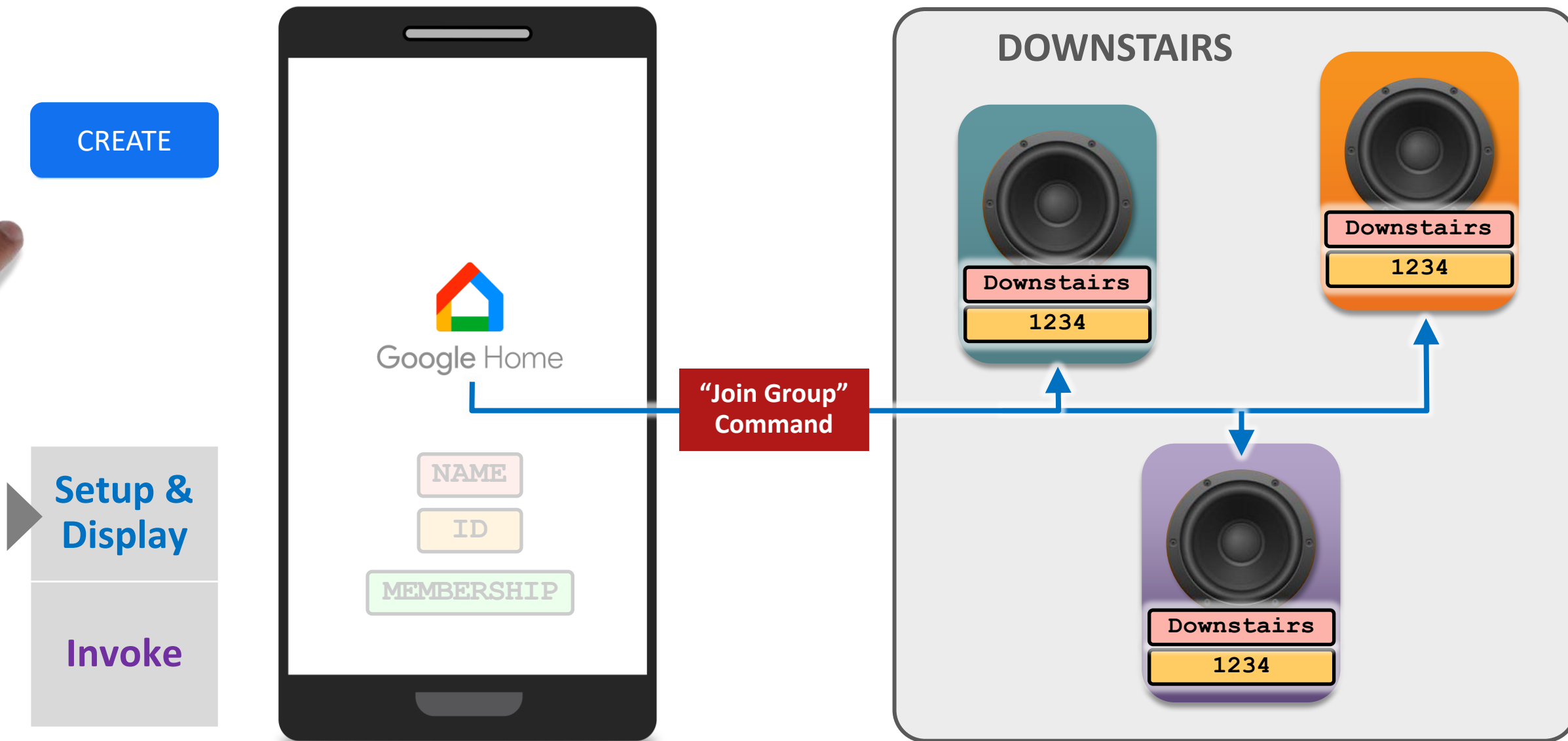
Development

Final Approval and Release

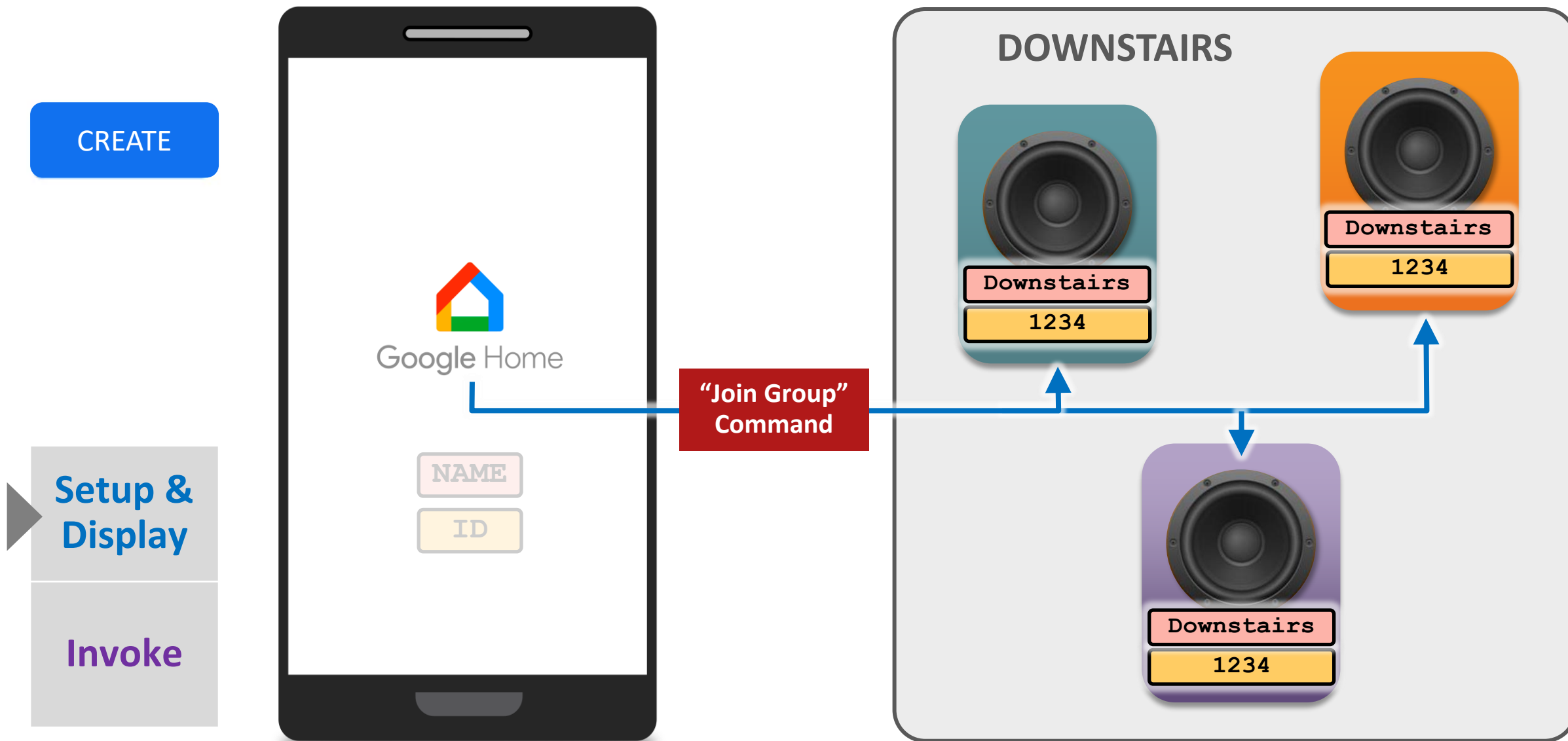
2015

- **May 8, 2015** | Source code written for "Join Group"
- **March 30, 2015** | Design doc
- **March 26, 2015** | Source Code approval
- **March 18, 2015** | Initial source code written

# Google's Old and New Design



# Google's Old and New Design





# Adaptive Continuous Automatic

# Available Speakers and Leadership Are Continuously Reassessed

DOWNSTAIRS



# Available Speakers and Leadership Are Continuously Reassessed

DOWNSTAIRS



# Available Speakers and Leadership Are Continuously Reassessed

DOWNSTAIRS



# Available Speakers and Leadership Are Continuously Reassessed

DOWNSTAIRS





# Available Speakers and Leadership Are Continuously Reassessed

DOWNSTAIRS



# Available Speakers and Leadership Are Continuously Reassessed

DOWNSTAIRS



# Available Speakers and Leadership Are Continuously Reassessed

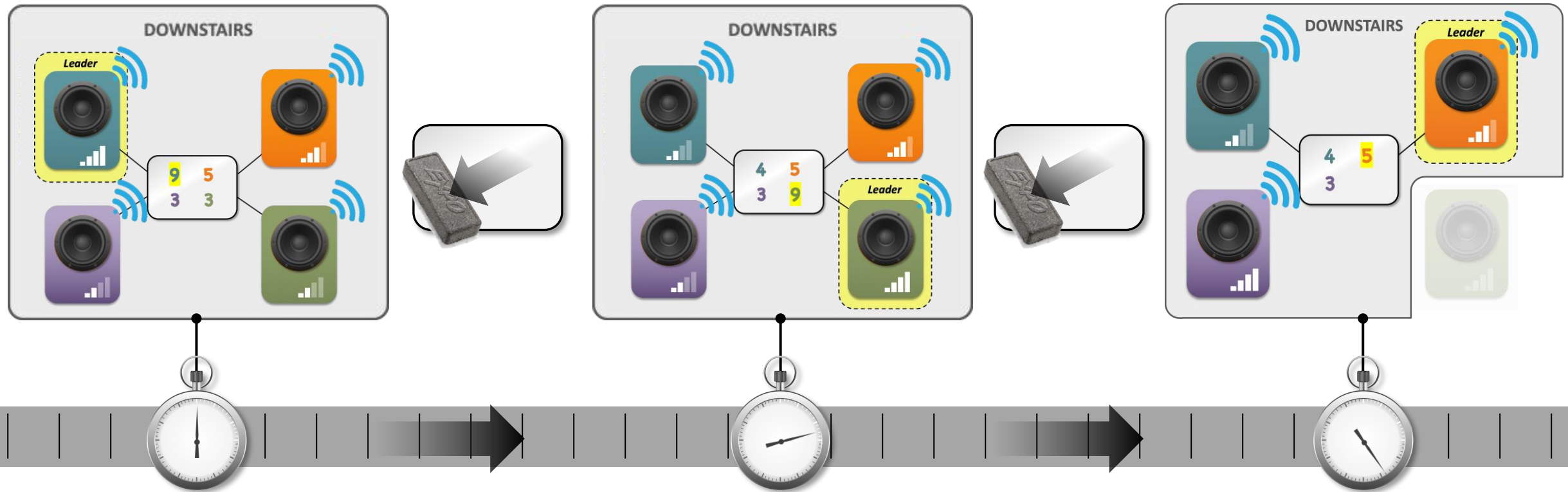
DOWNSTAIRS



# Available Speakers and Leadership Are Continuously Reassessed

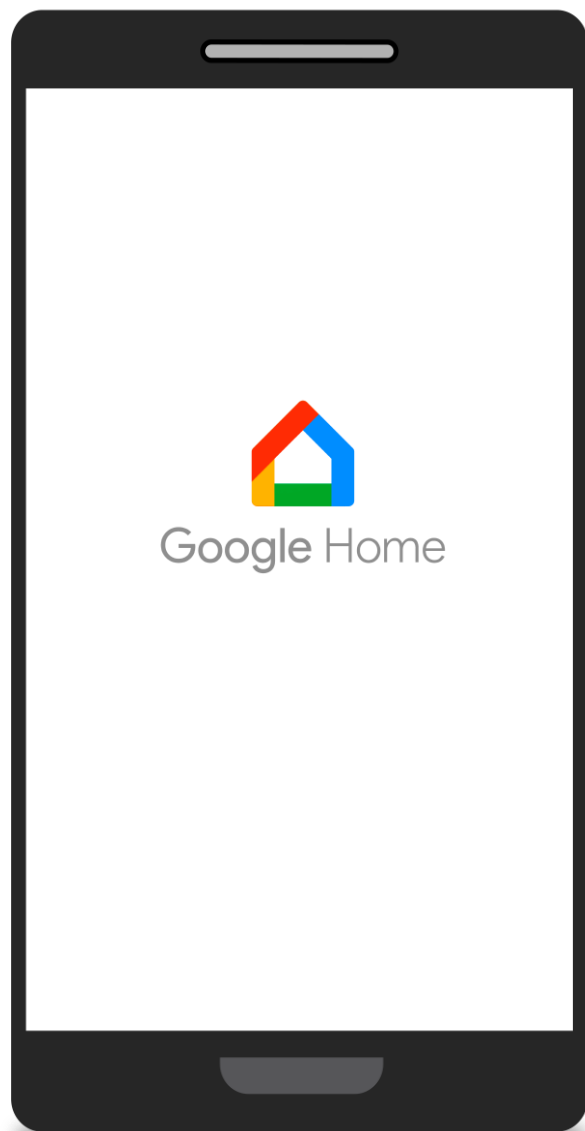


# Available Speakers and Leadership Are Continuously Reassessed





# Google's New Design



IDLE

STANDALONE

GROUP

# Google's New Design



# Google's New Design

“Join Group”  
Command

`StopCurrentApp();`



IDLE

STANDALONE

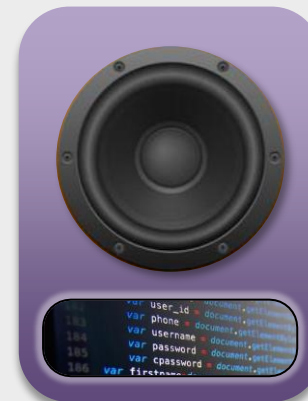
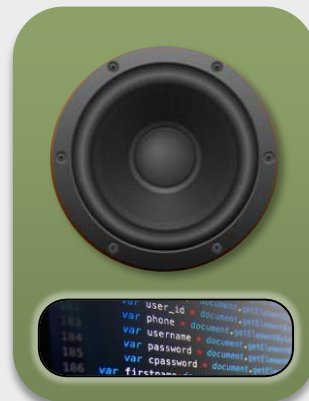
GROUP

# Google's New Design

“Join Group”  
Command

StopCurrentApp();  
AddGroup(g);

## DOWNSTAIRS



IDLE

STANDALONE

GROUP

# Google's New Design



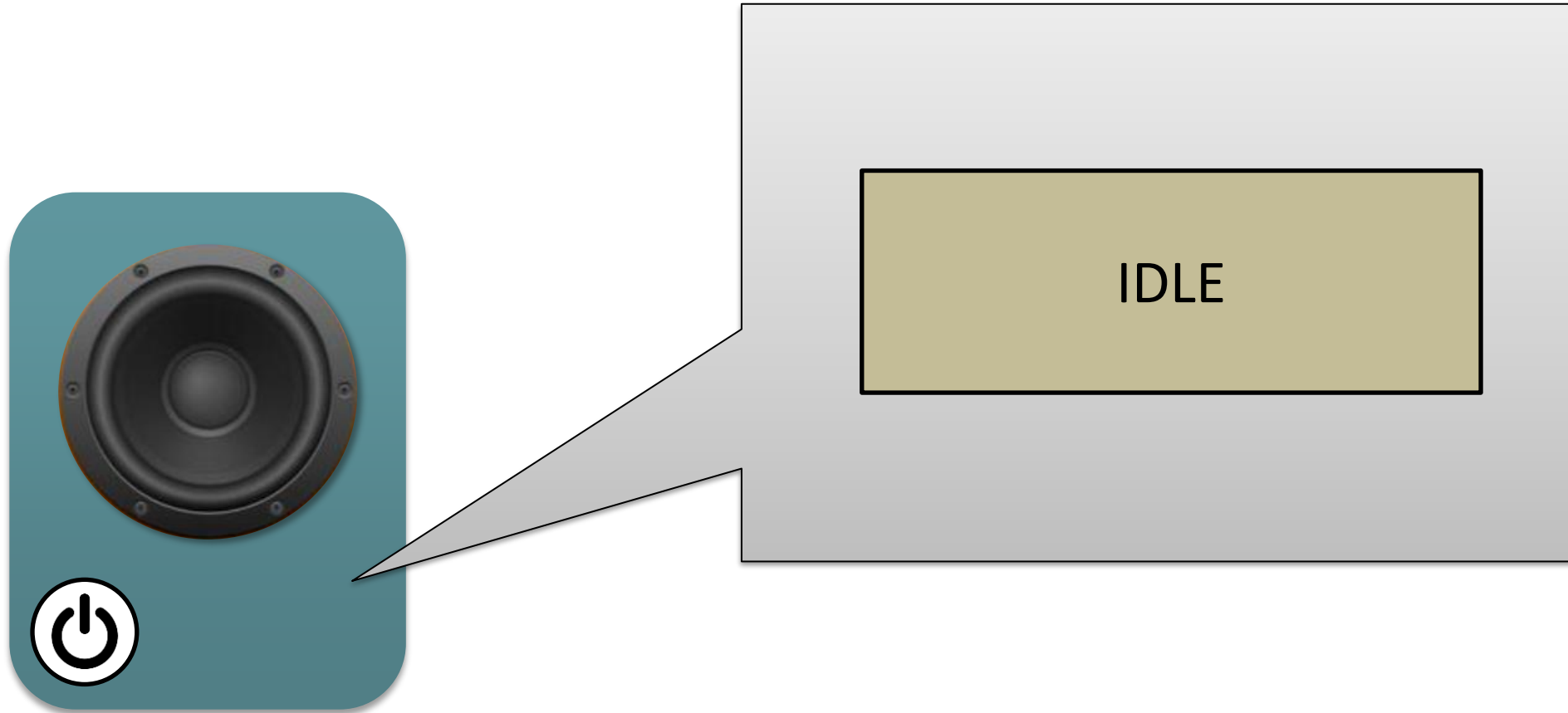
IDLE

STANDALONE

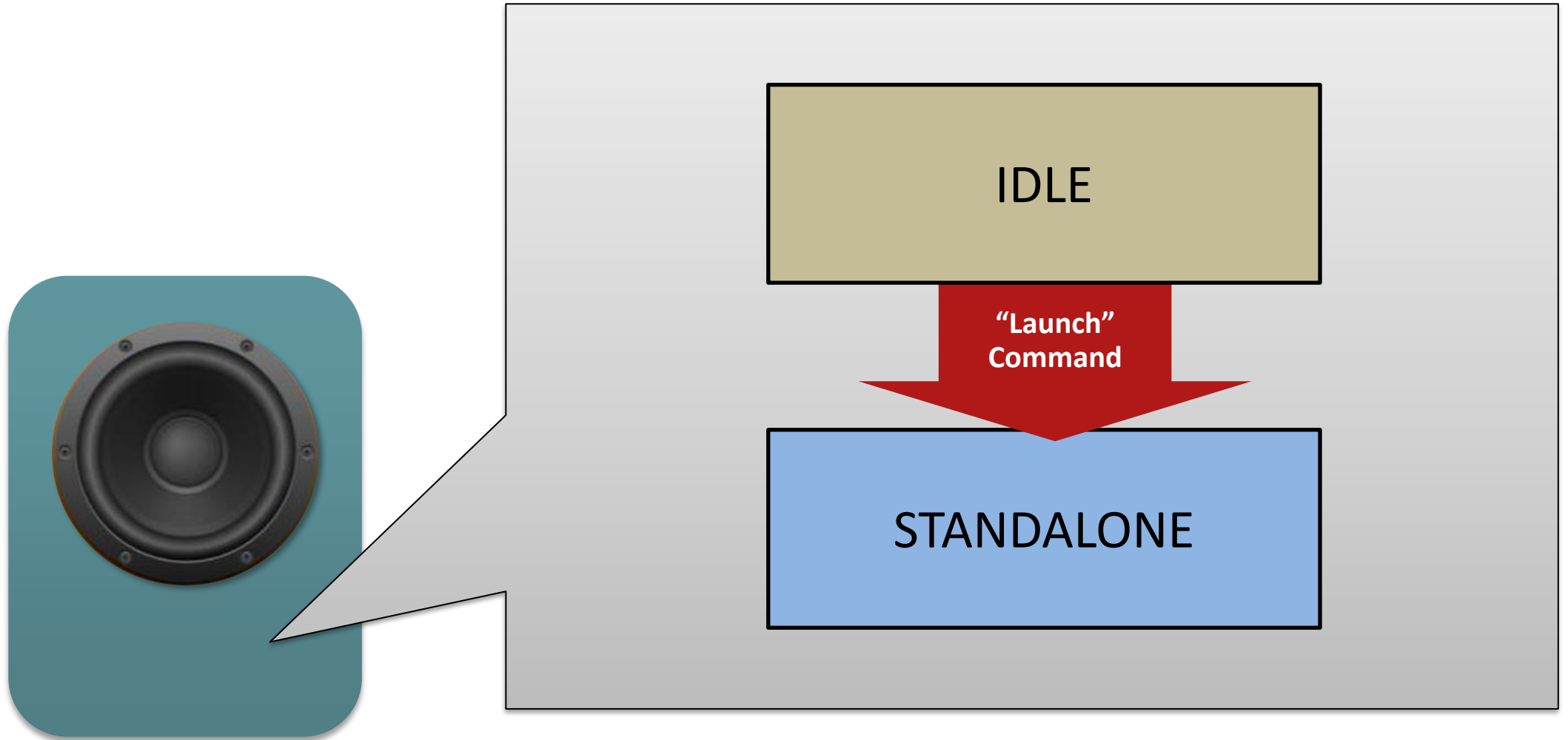
GROUP



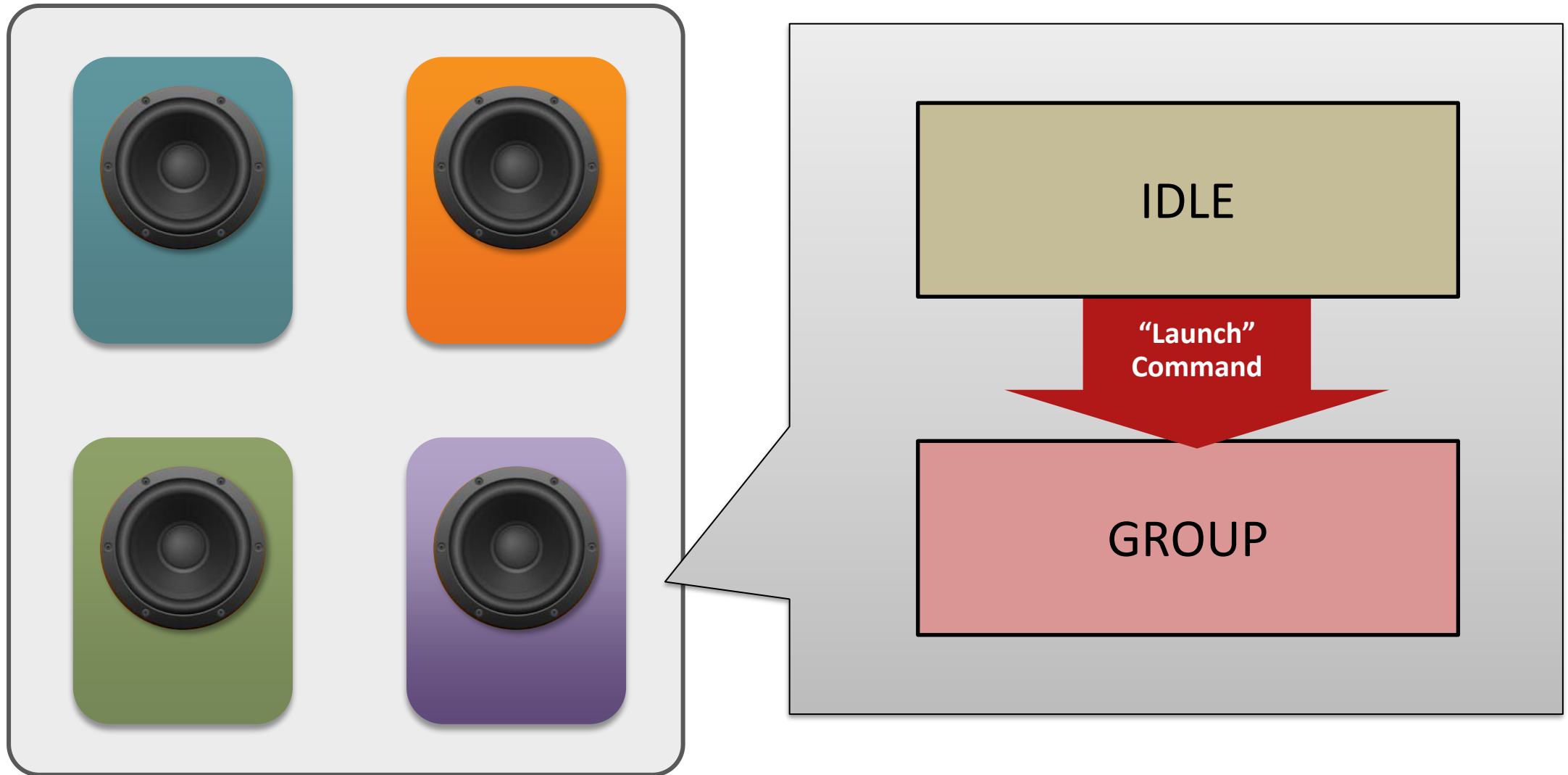
# Idle Mode



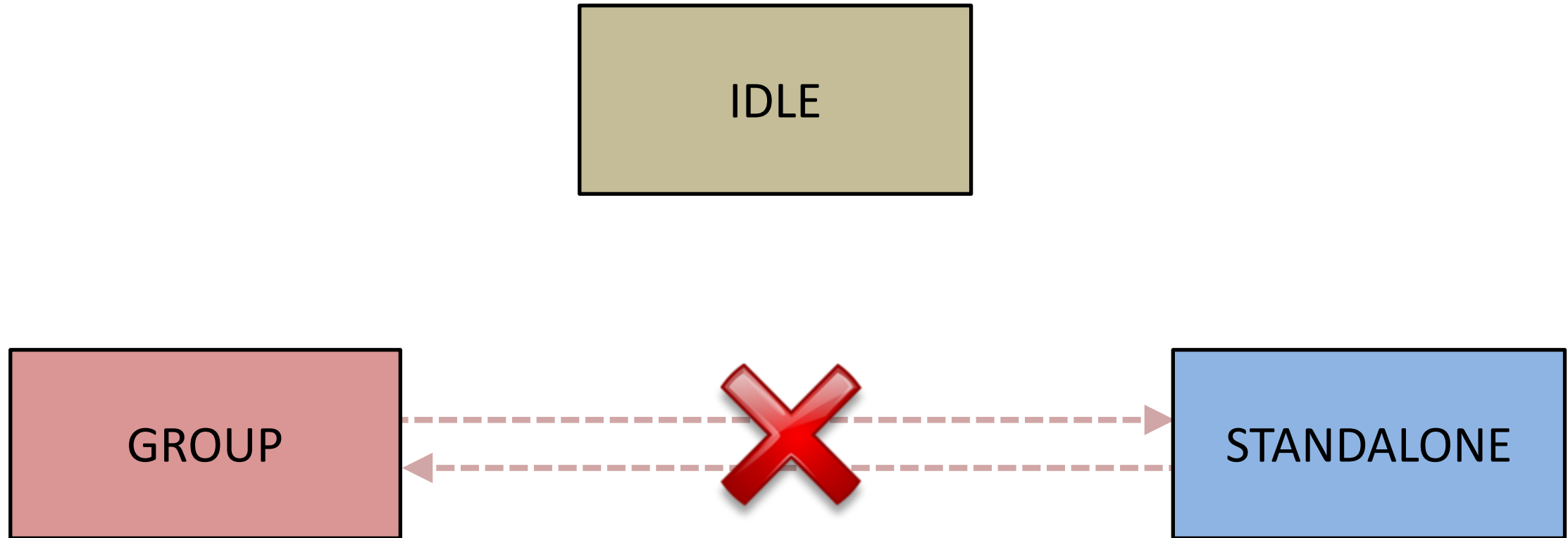
# Standalone Mode



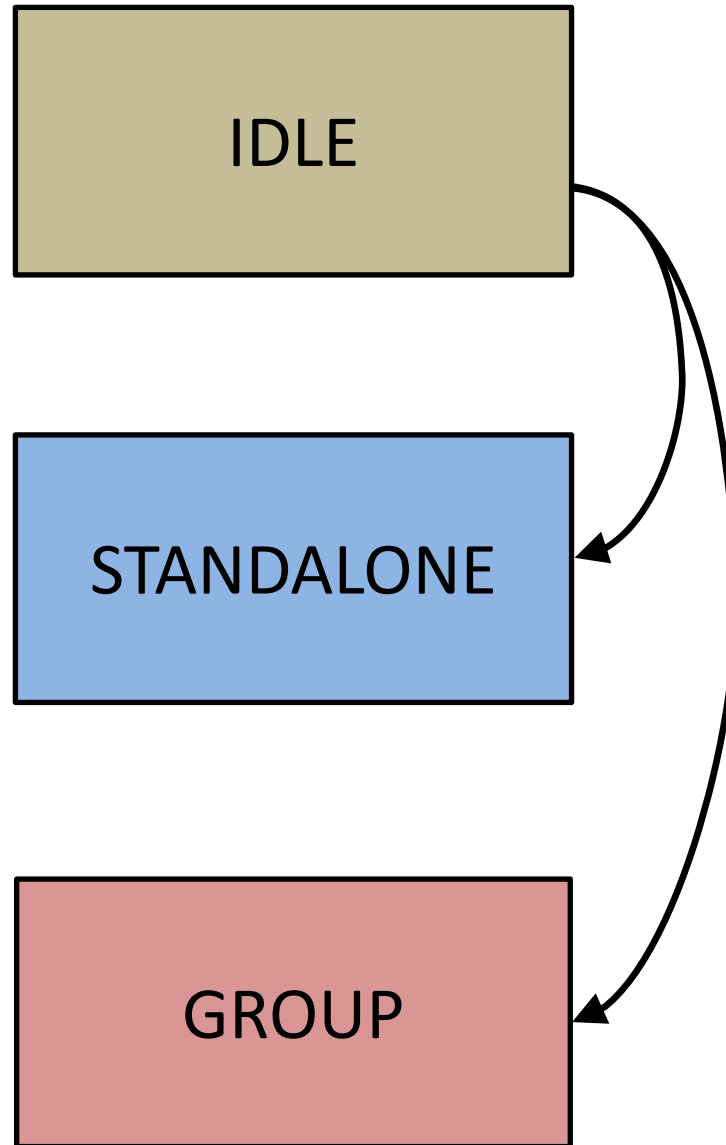
# Group Mode



# Google's New Design

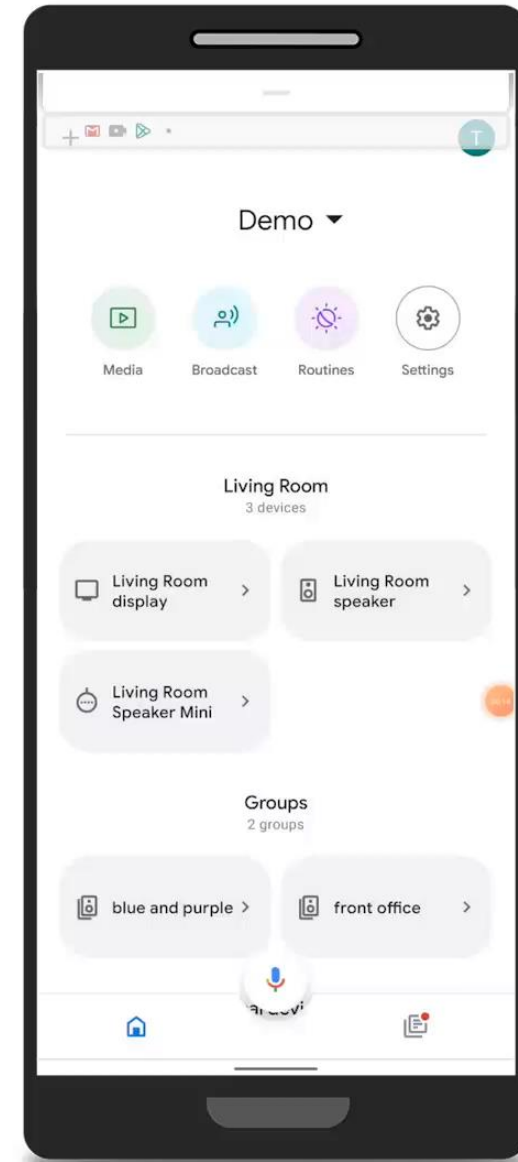


# Google's New Design





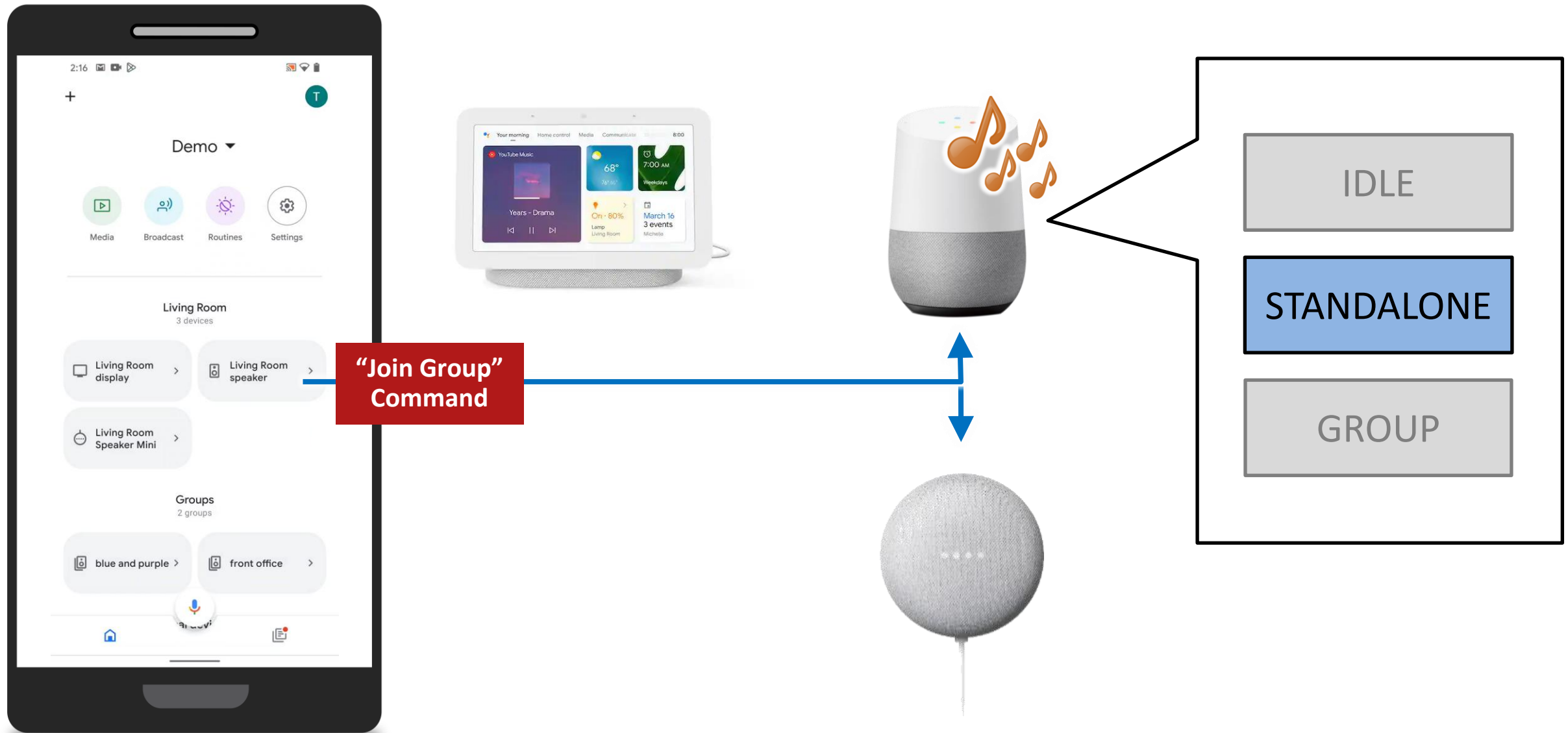
# Video Demonstration



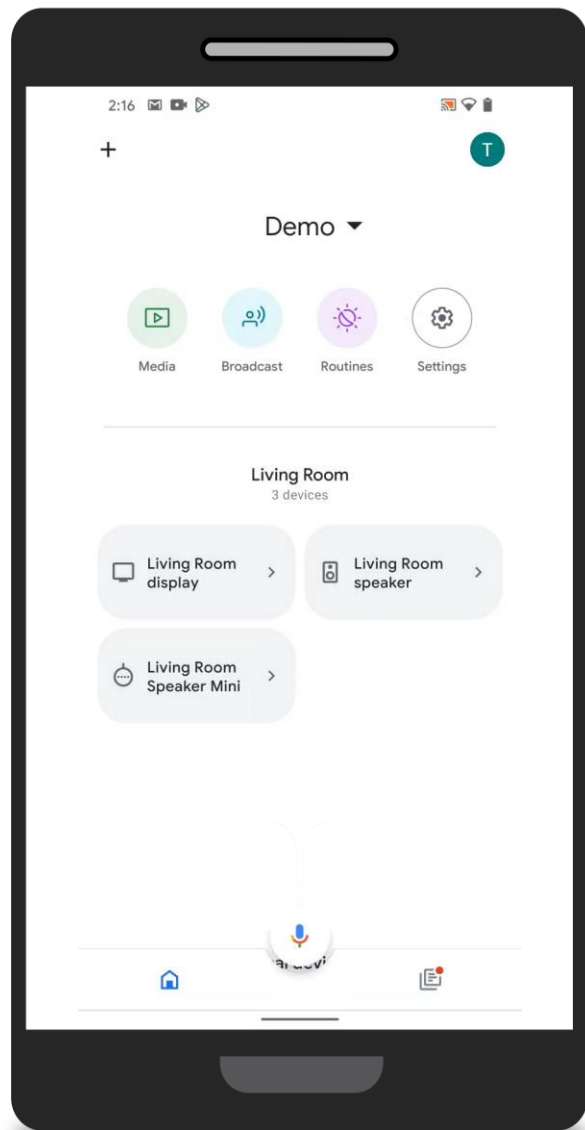
# Google's New Design



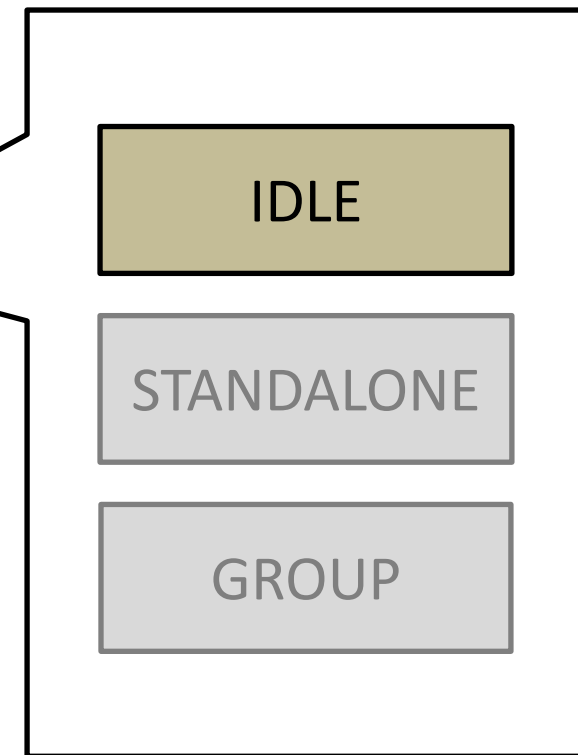
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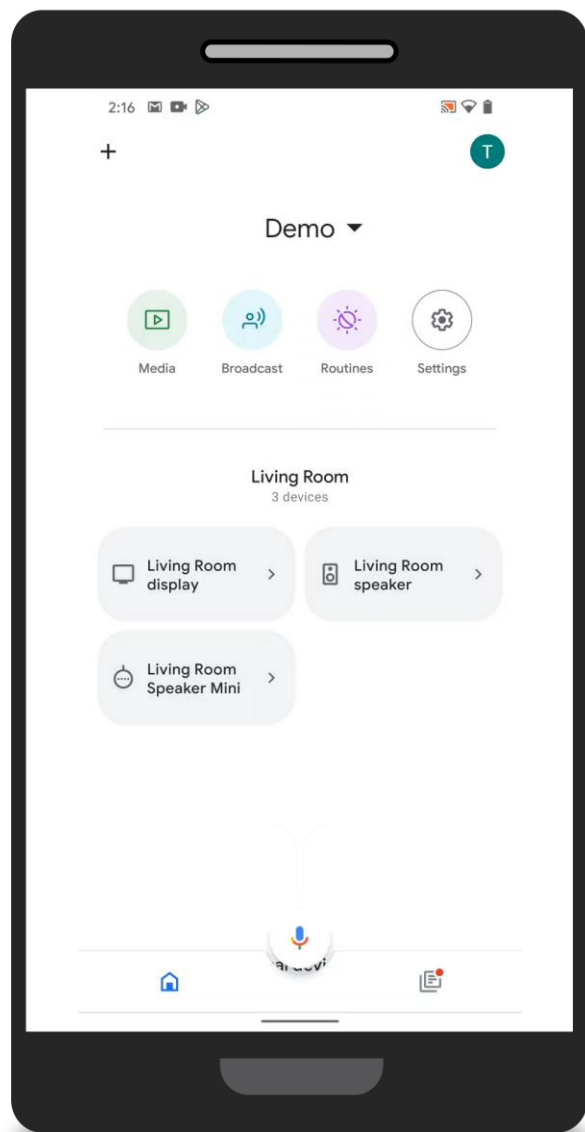
# Google's New Design



`StopCurrentApp();`



# Google's New Design



**AddGroup(g);**



**DOWNSTAIRS**

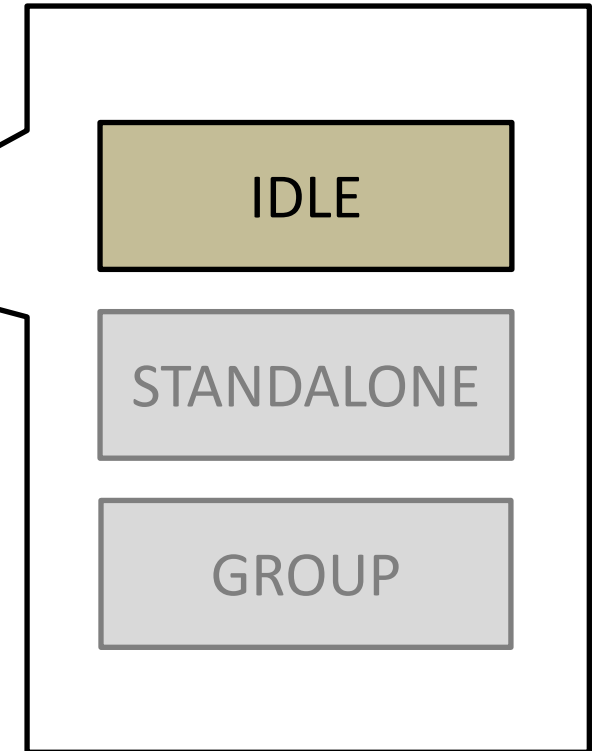
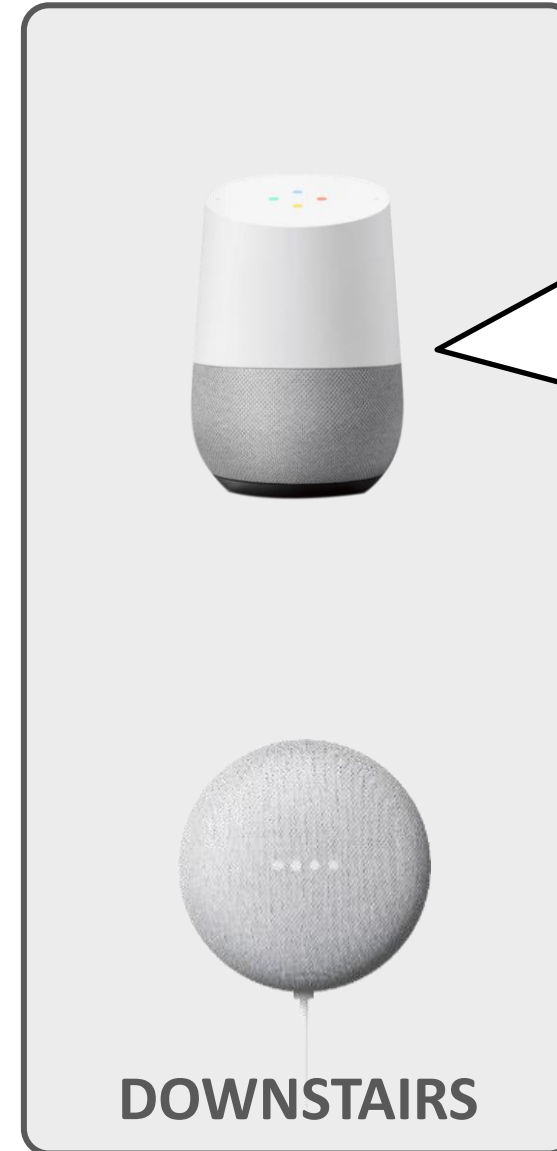
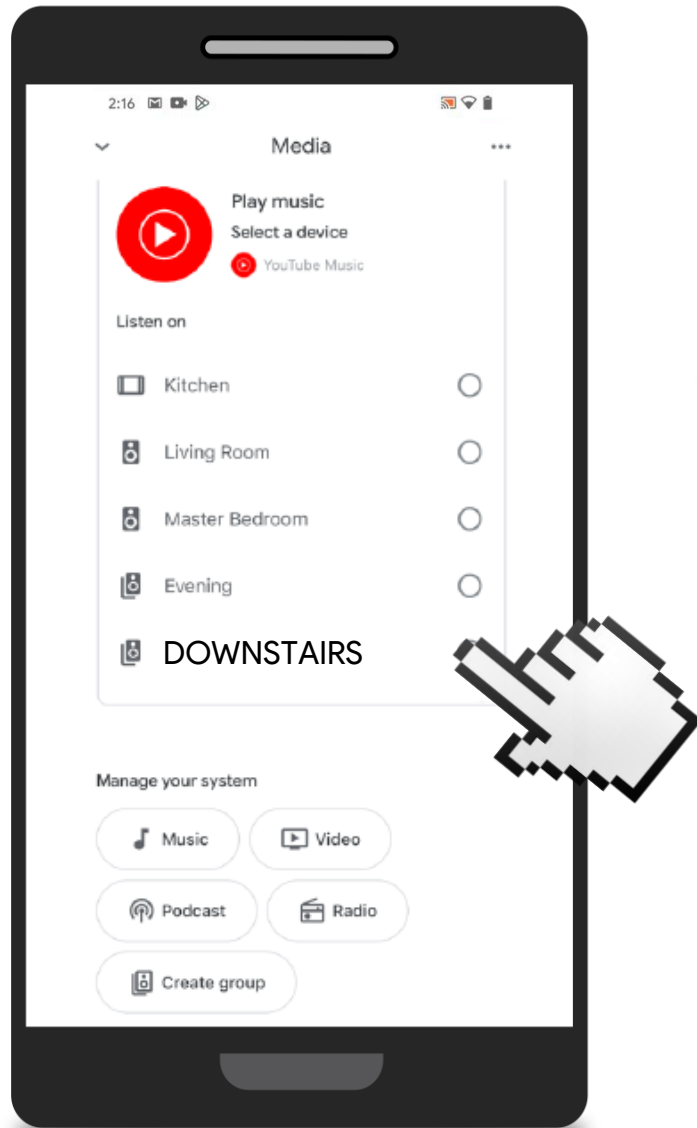
**IDLE**

**STANDALONE**

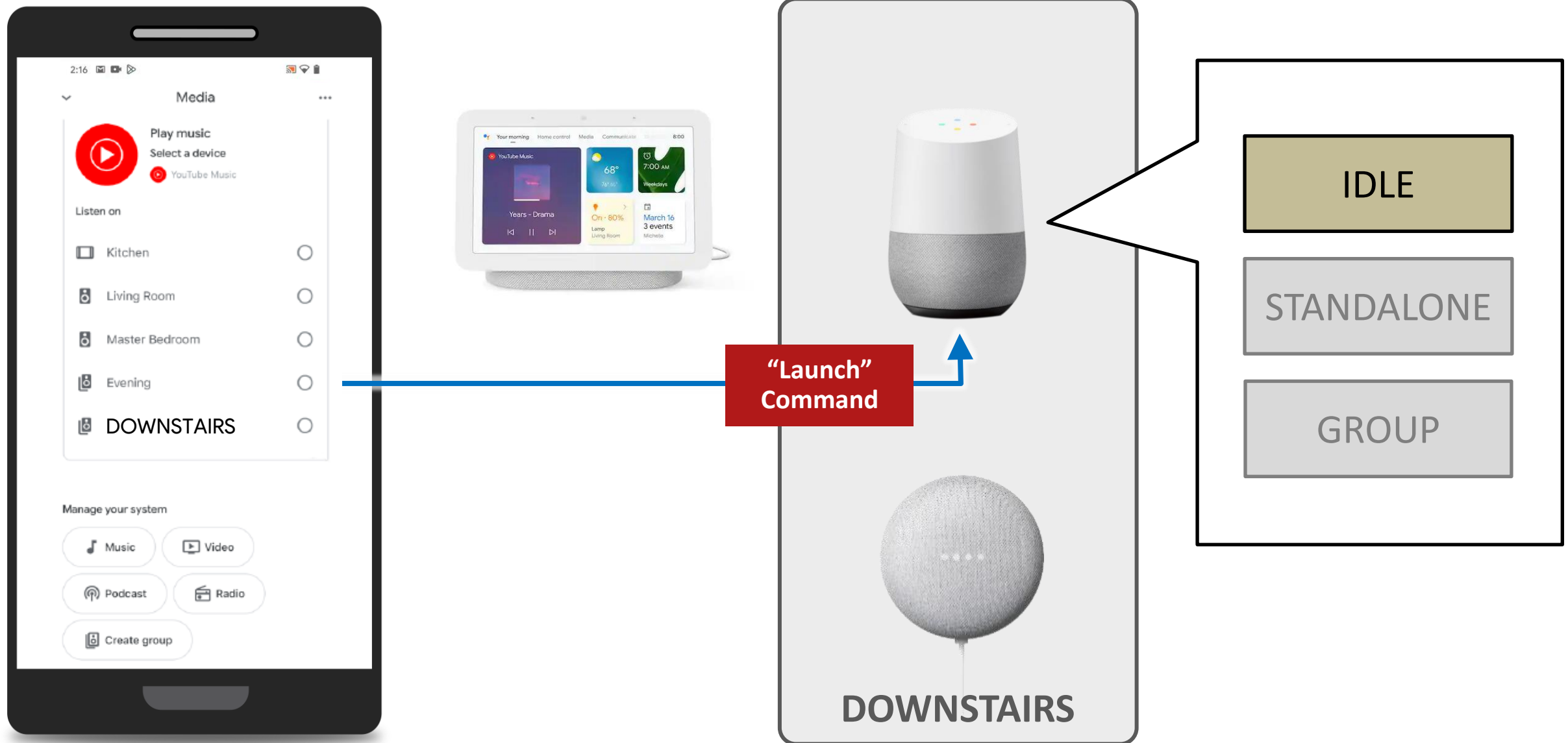
**GROUP**



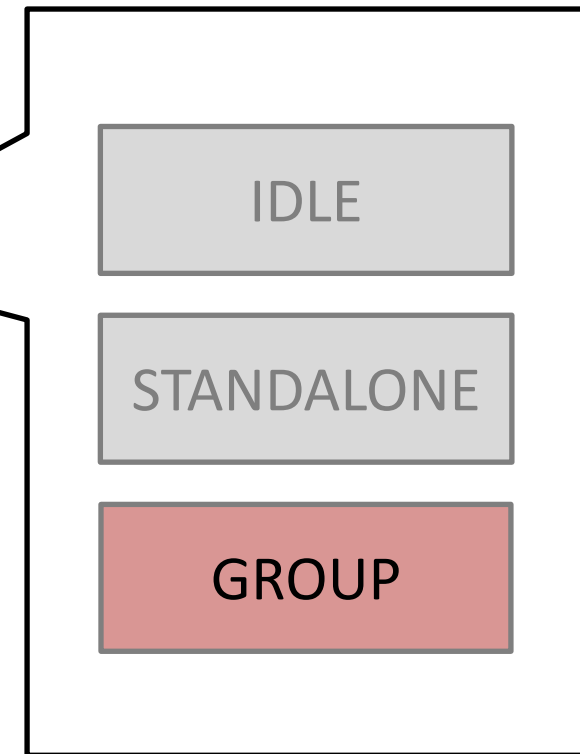
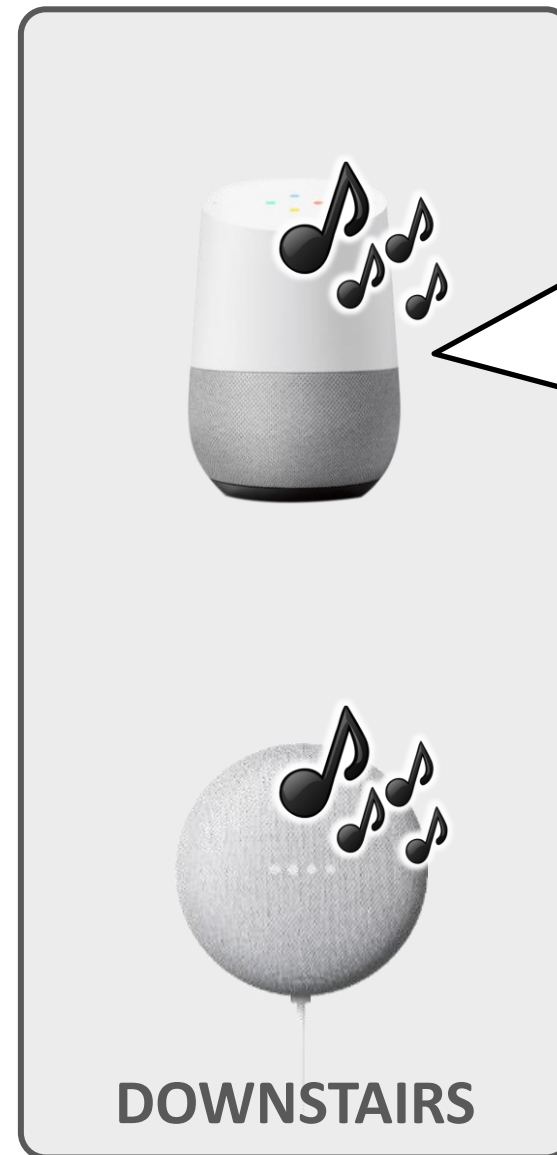
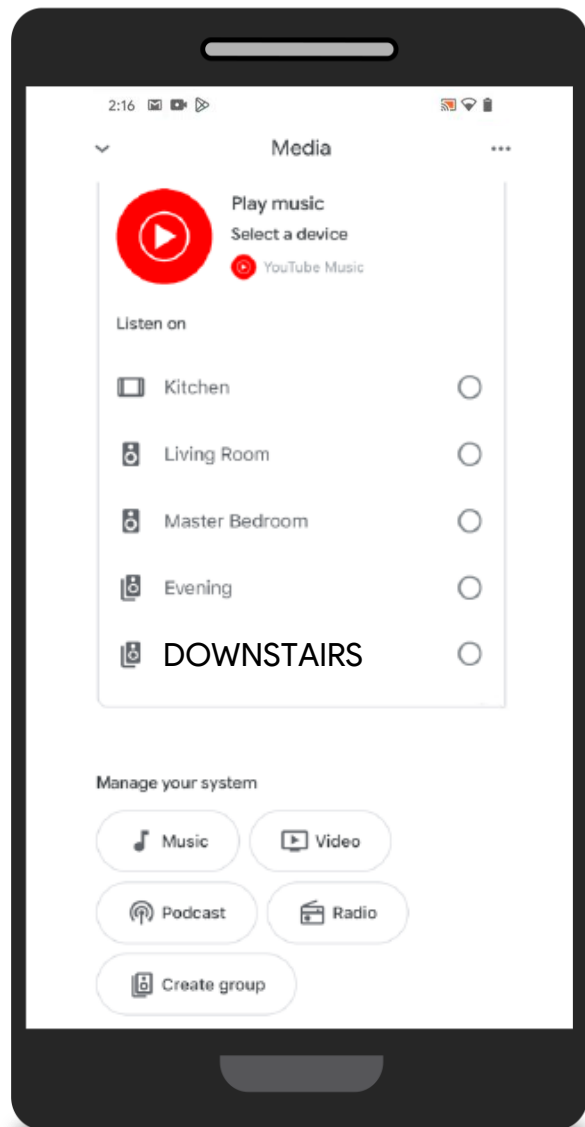
# Google's New Design



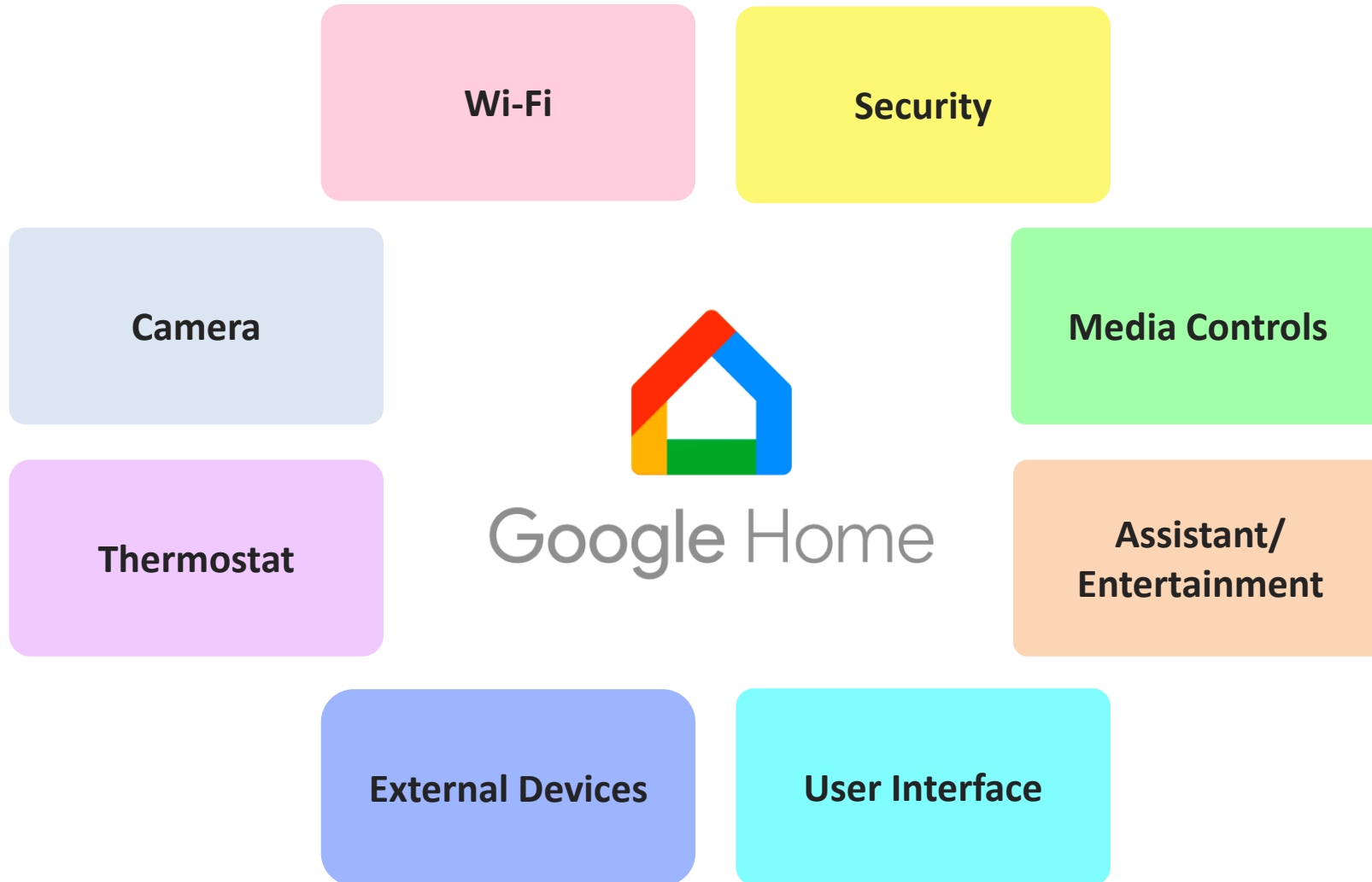
# Google's New Design



# Google's New Design



# Google's Home App Group



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# Examples of Uses of Google Home App



## Watch or listen to media

- Voice Match
- Music
- News
- Watch news
- Podcasts
- Radio
- Relax
- Bluetooth
- Audiobooks



## Plan your day

- Routines
- Traffic
- Local guide

News



Radio



Traffic



Weather



Flight Info



Google Photos



Shopping List



Reminders



Timer

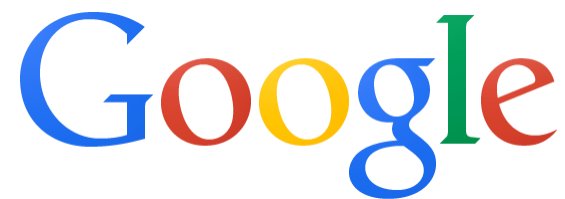


Security Video



*Sonos v. Google*

*Dr. Dan Schonfeld Direct Examination*





# Education and Experience

## EDUCATION



### **THE JOHNS HOPKINS UNIVERSITY**

Ph.D. Electrical and Computer Engineering, 1990

M.S. Electrical and Computer Engineering, 1988



### **UNIVERSITY OF CALIFORNIA, BERKELEY**

B.S. Electrical Engineering and Computer Science, 1986

## EXPERIENCE



### **UNIVERSITY OF ILLINOIS AT CHICAGO**

Professor, ECE, CS, Bioengineering Departments (1990 – Current)

Director, University-Industry Engineering Research Center (2008 – 2011)

Co-Director, Multimedia Communications Laboratory (1997 – Current)

Editor-In-Chief, IEEE Trans. On Circuits And Systems For Video Tech. (2014-2017)

# Recognitions and Research

## RECOGNITIONS



## RESEARCH



**U.S. Department  
of Defense**



**TEXAS  
INSTRUMENTS**



**MOTOROLA**

Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 85 of 283

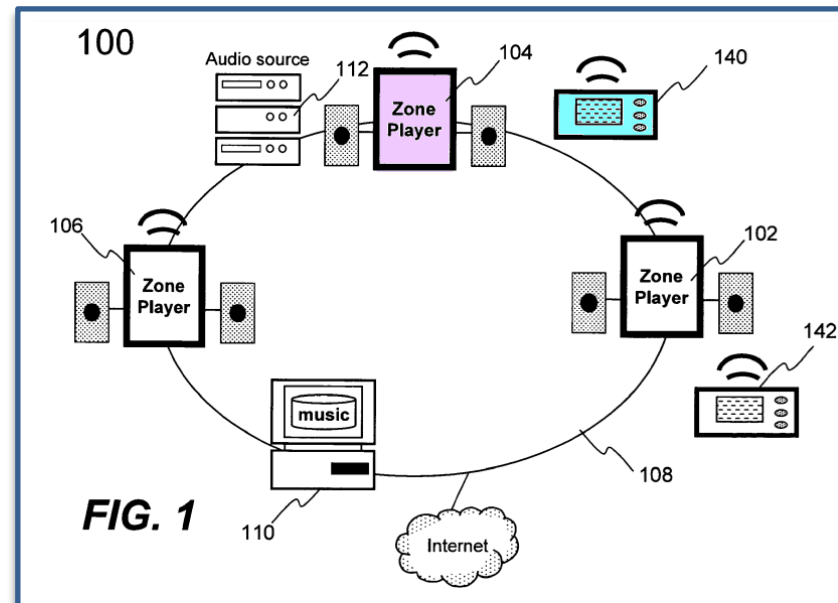
# '885 Patent, Claim 1 vs. '966 Patent, Claim 1

## '885 Patent, Claim 1

- [1.0] A first zone player comprising:
- [1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;
- [1.2] one or more processors;
- [1.3] a non-transitory computer-readable medium; and
- [1.4] **program instructions** stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:

## '966 Patent, Claim 1

- [1.0] A computing device comprising:
- [1.1] one or more processors;
- [1.2] a non-transitory computer-readable medium; and
- [1.3] **program instructions** stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:



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# '885 Patent, Claim 1 vs. '966 Patent, Claim 1

## '885 Patent, Claim 1

[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

## '966 Patent, Claim 1

[1.4] while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:

[1.5] receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;

[1.6] based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

[1.7] receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

[1.8] based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;

[1.9] displaying a representation of the first zone scene and a representation of the second zone scene; and

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# '885 Patent, Claim 1 vs. '966 Patent, Claim 1

## '885 Patent, Claim 1

**[1.5]** while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

**[1.6]** (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

**[1.7]** (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

**[1.8]** after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

## '966 Patent, Claim 1

**[1.4]** while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:

**[1.5]** receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;

**[1.6]** based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

**[1.7]** receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

**[1.8]** based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;

**[1.9]** displaying a representation of the first zone scene and a representation of the second zone scene; and

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# '885 Patent, Claim 1 vs. '966 Patent, Claim 1

## '885 Patent, Claim 1

[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

\* \* \*

[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and

[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.

## '966 Patent, Claim 1

[1.4] while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:

\* \* \*

[1.10] while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

[1.11] based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.



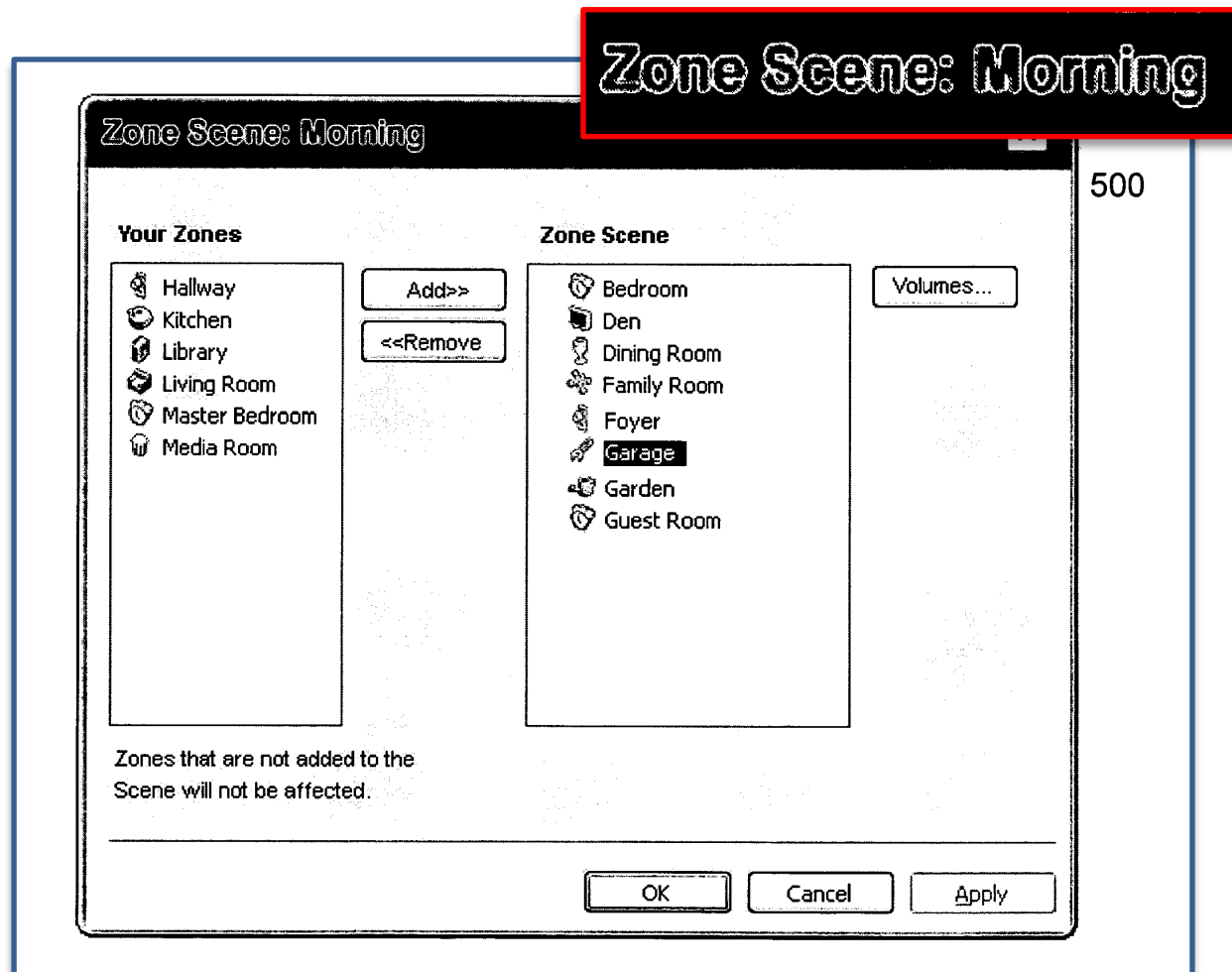
Claim Term	Sonos Patents	Agreed-Upon Construction
“zone scene”	’885 Patent ’966 Patent	“a <u>previously-saved grouping</u> of zone players according to a common theme”
“indication that the first zone player has been added to a zone scene”	’885 Patent	“indication from the network device that the [first] zone player has been added by the user to a zone scene”

## Person of Ordinary Skill In the Art:

A person of ordinary skill in the art of the '885 and '966 patents would have at least

- (a) a bachelor's degree in computer science, computer engineering, electrical engineering, or an equivalent thereof, and
- (b) at least 2-4 years of professional experience in the field of multimedia playback systems, such as consumer audio systems, or an equivalent level of skill, knowledge, and experience.

Moreover, additional education could substitute for work experience and significant work experience could substitute for formal education.

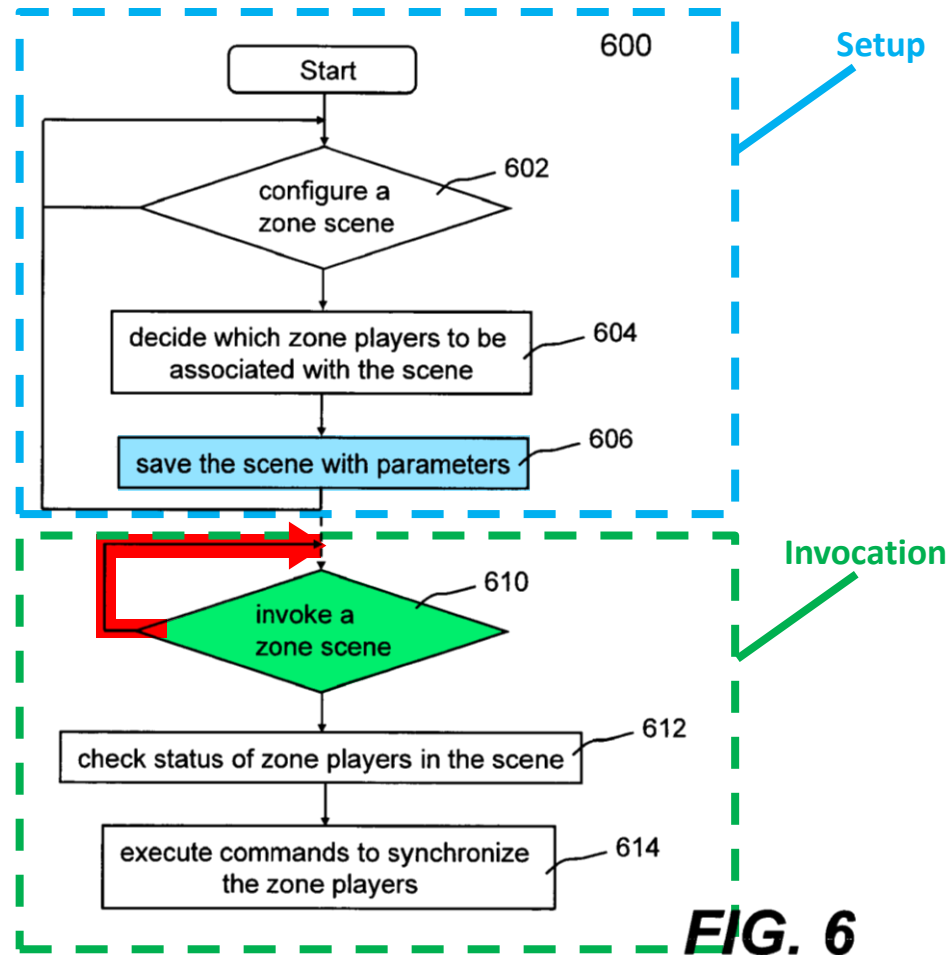


'966/'885 Patent (TX0001, TX0003) at Fig. 5A

If the user wishes to link 5 of the 6 zone players using the current mechanism, he/she must start with a single zone and then manually link each zone to that zone. This mechanism may be sometimes quite time consuming. According to one embodiment, a set of zones can be dynamically linked together using one command. Using what is referred to herein as a theme or a zone scene, zones can be configured in a particular scene (e.g., morning, afternoon, or garden), where a predefined zone grouping and setting of attributes for the grouping are automatically effectuated.

For instance, a "Morning" zone scene/configuration command would link the Bedroom, Den and Dining Room together in one action. Without this single command, the user would need to manually and individually link each zone. FIG. 3A provides an illustration of one zone scene, where the left column shows the starting zone grouping—all zones are separate, the column on the right shows the effects of grouping the zones to make a group of 3 zones named after "Morning".

'885 Patent (TX0003) at 8:42-61

**FIG. 6****Setup***Creating a “morning” group*

Bedroom

Den

Dining Room

**Save For Later****Invocation***Invoking the “morning” group*

Bedroom

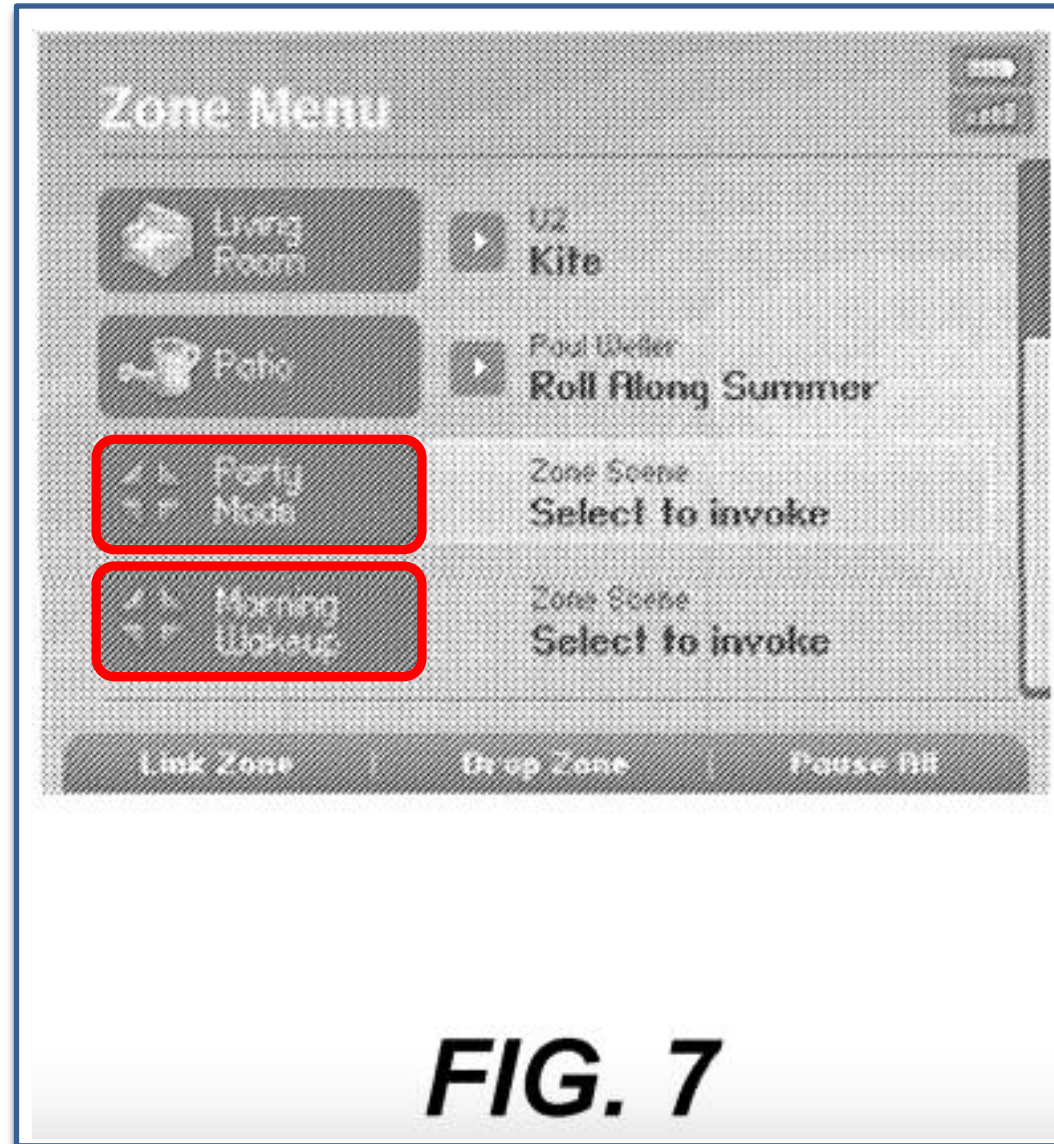
Den

Dining Room

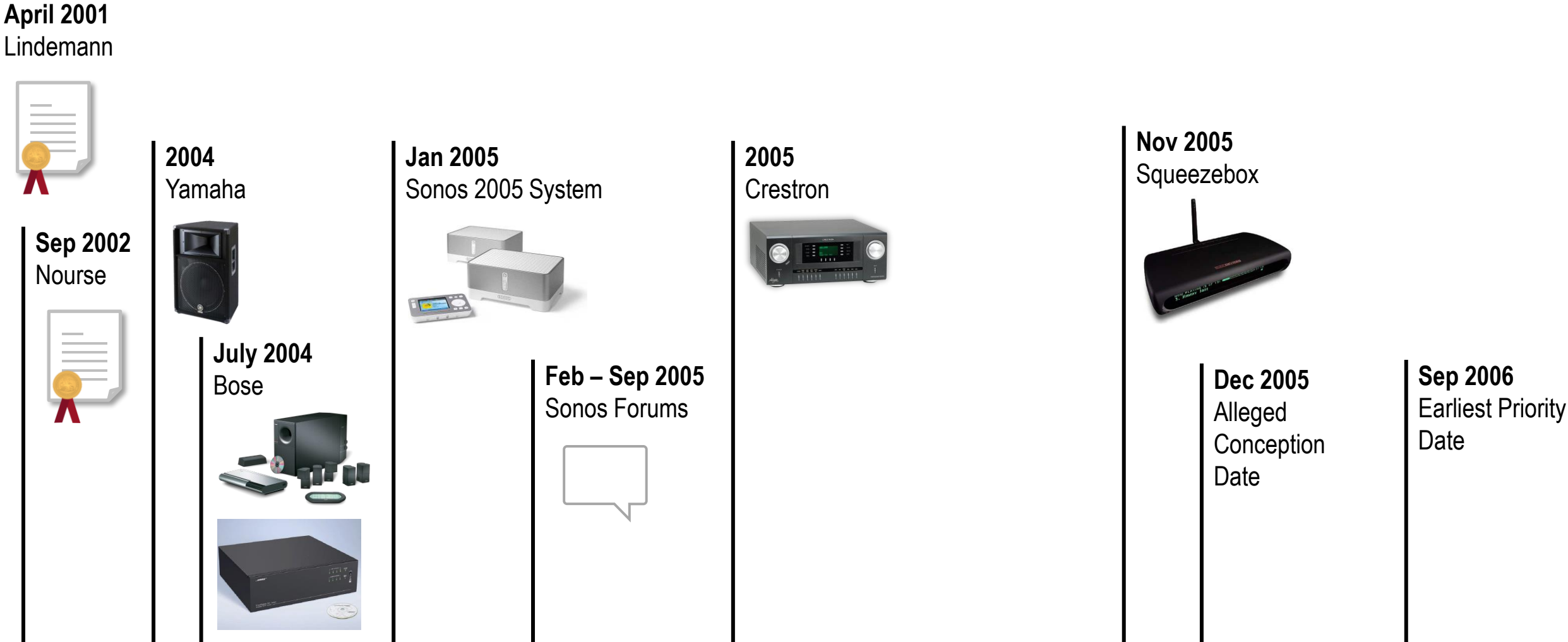


# Party Mode in the Patent

Party Mode  
Morning Wakeup



'966 Patent at Fig. 7

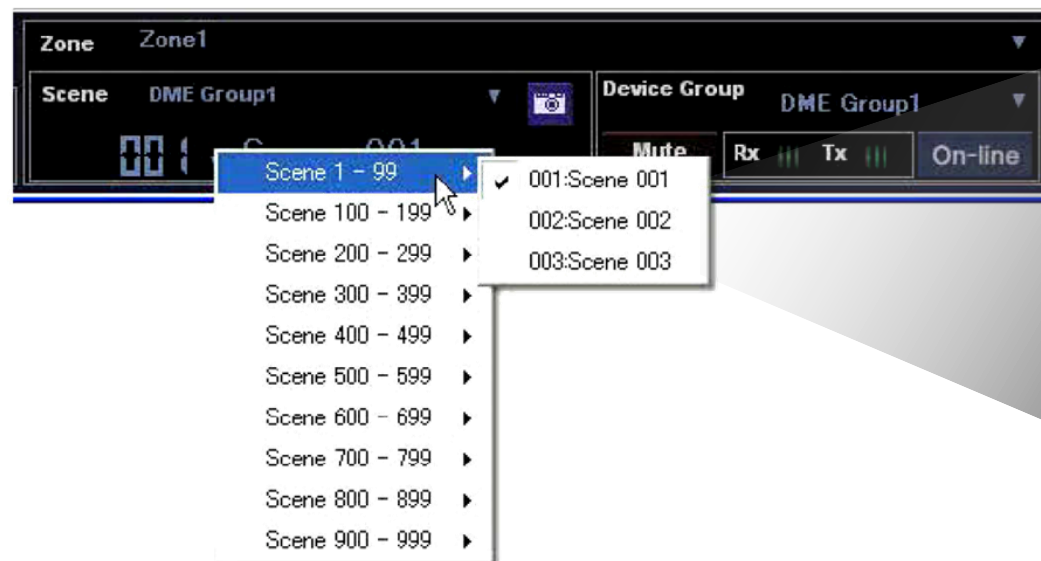






## ■ [Scene Number]

Displays the number of the current scene or scene link. A list where you can select a scene or scene link is displayed when you press the [▼]. The EDIT indicator will light when a parameter has been edited after recalling or storing a scene.



✓ 001:Scene 001  
002:Scene 002  
003:Scene 003

TX2426 at 55



While DME does not explicitly teach the inclusion, exclusion, etc. of particular enumerated first, second, etc. players of the set of available players to form, create, save, recall etc. a particular first, second, etc. grouping Examiner takes official notice that the grouping and sub-grouping of a constellation of audio players to include or disclude particular players from an operational set was well known in the art before the effective filing date of the instant invention and would have been an obvious inclusion. The DME system enables the practice of the claimed

TX0004 (file history for '966 patent) at 4577



and would have been an obvious inclusion. The DME system enables the practice of the claimed subject matter without undue experimentation and as such grouping of playback device and channels thereon would have been obvious as a matter of routine experimentation over the course of normal operation by the average skilled practitioner upon the DME interface to create, save and recall various configurations including and/or excluding the particular enumerated playback devices.

TX0004 (file history for '966 patent) at 4577

# SONOS

device groups can be changed as required.” *Id.* at p. 281 (emphasis added). Thus, DME Scenes can be configured/stored/recalled within a given DME device group that is already established—but the DME Manual does not suggest that recalling a DME Scene can re-group individual devices into different DME device groups.

TX0004 (file history for '966 patent) at 823



### *Reasons for Allowance*

The following is an examiner's statement of reasons for allowance: the prior art does not reasonably teach the subject matter of the independent claims. Particularly while DME operates to accomplish playback of selected media in synchrony on a selected set of first, second, etc. playback devices when a scene is invoked upon said set of players, DME does not allow for continuous output of media on a particular playback device and joining of the continuous output by a selected playback device or set thereof in synchrony with media currently playing back upon the particular playback device. That is, the prior art enables the selection of a device or group for synchronized playback of

**TX0006 (file history for '885) at 5850**



device. That is, the prior art enables the selection of a device or group for synchronized playback of media, however the synchronization is the start of the process. Whereas invocation of a scene which adds a playback device or group thereof as claimed causes the added playback device(s) to join with a particular playback device currently playing media and output said media in synchrony with the particular playback device without a pause or interruption of the playing media nor any need for a user to further engage with playback controls of the playing media. The Bose teaches a system which allows

TX0006 (file history for '885) at 5850



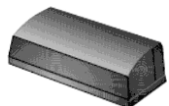
**BOSE****Linking rooms for common control**

There are two ways to link rooms in order to control them as one.

- Set up a shared source in two or more rooms and select them together using the ROOM button. See "Setting up a shared source" above.
- Link all connected rooms using the HOUSE button. See "Using the HOUSE button" on page 43.

**Returning to single-room control**

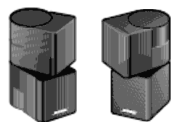
After you have gained control of multiple rooms using the ROOM button, you can use the ROOM button again to gain control of a single room. Press ROOM until the room you want is displayed (A, B, C, or D). Control that room as desired.



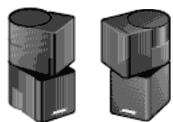
Multi-room Interface



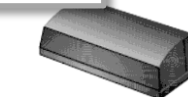
Personal Media Center

**ROOM A**

Jewel Cube Speakers

**ROOM B**

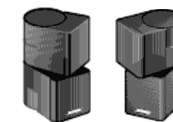
Jewel Cube Speakers

**Room  
button****House  
button**

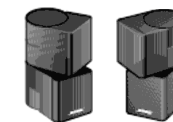
Multi-room Interface



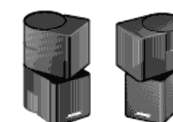
Personal Media Center

**ROOM A**

Jewel Cube Speakers

**ROOM B**

Jewel Cube Speakers

**ROOM C**

Jewel Cube Speakers

**ROOM D**

Jewel Cube Speakers

TX6000 at 7, 10, 44



interruption. Bose displays static groupings of media players attached as “rooms” and the rooms may be individually activated and individually configured for delivery of a synchronous media and/or grouped into a party mode where all rooms synchronously deliver a common media. As such Bose does not allow

TX0006 ('885 file history) at 5850

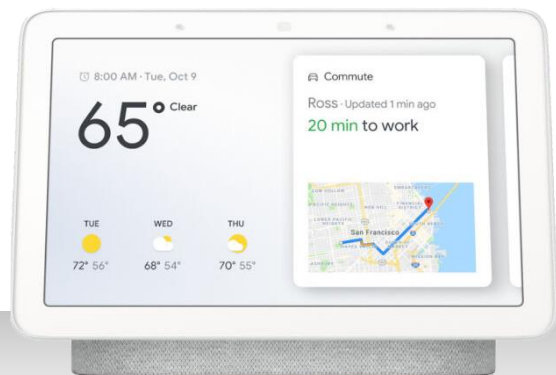
## Old Devices

Firmware version 1.56.309385

Firmware version 1.56.313652

## New Devices

Firmware version 1.56.324896



Nest Hub



Nest Audio Player



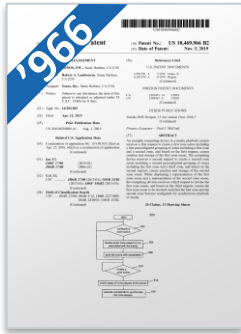
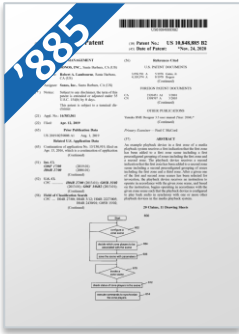
Nest Mini



Google Pixel 7



iPhone 12 Pro

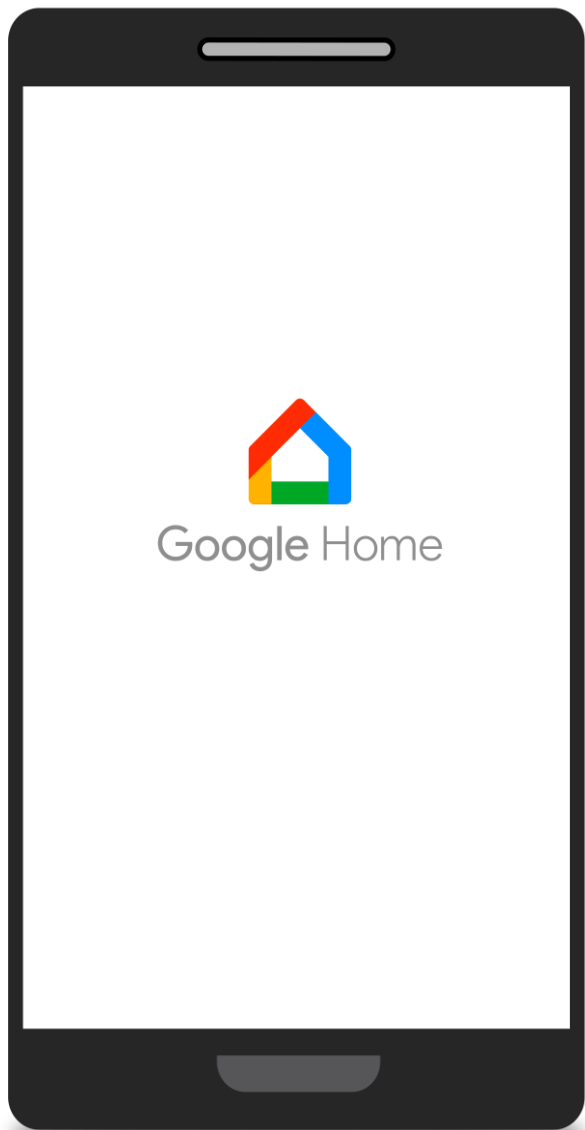


	'885 Patent	'966 Patent
Old Design		No storage of zone scenes
New Design	No operating in standalone mode	No operating in standalone mode No storage of zone scenes

# Google's New Design



# Google's New Design



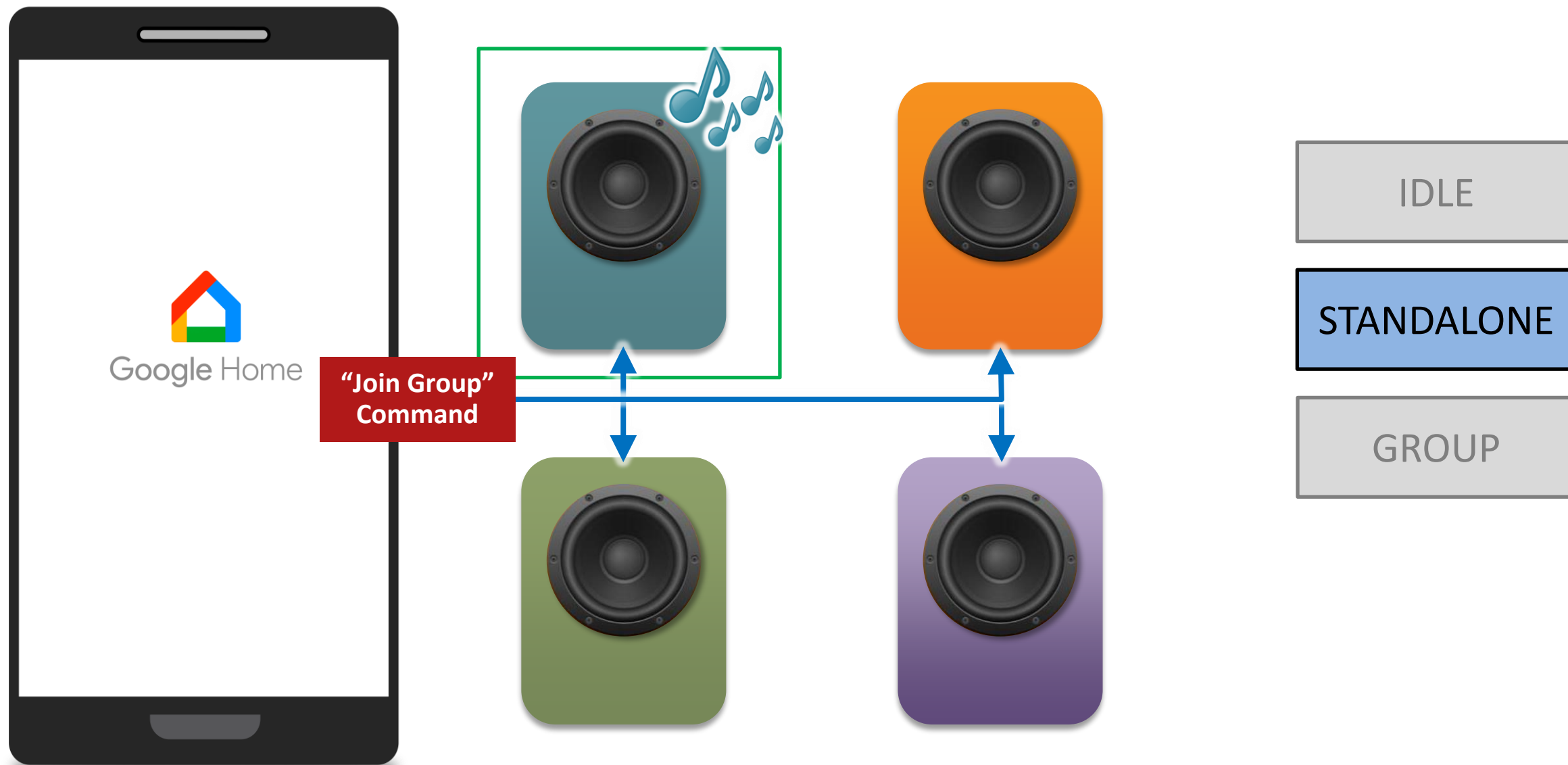
IDLE

STANDALONE

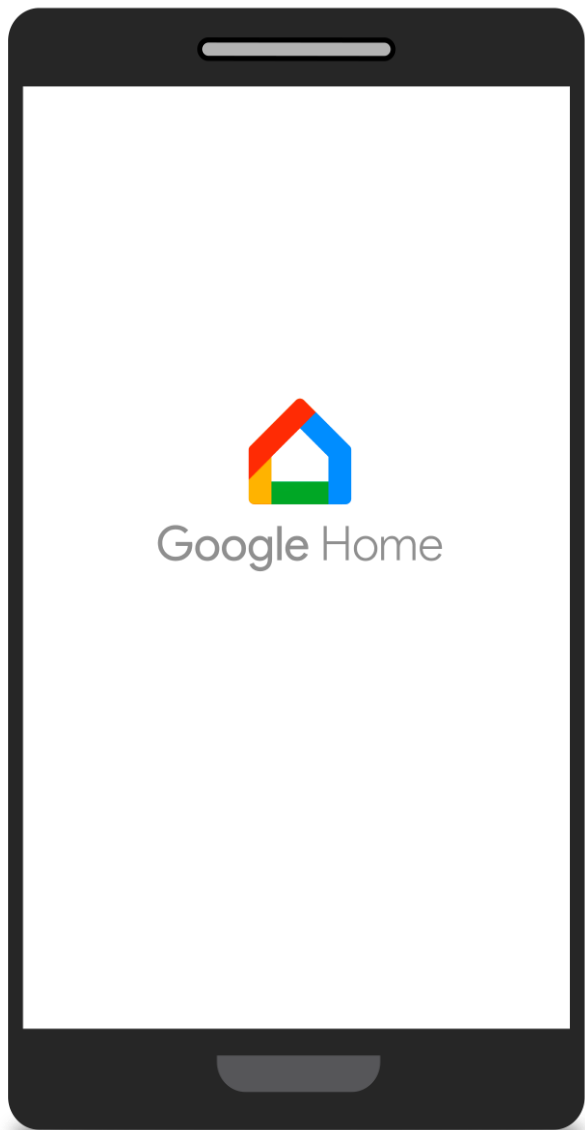
GROUP



# Google's New Design



# Google's New Design



IDLE

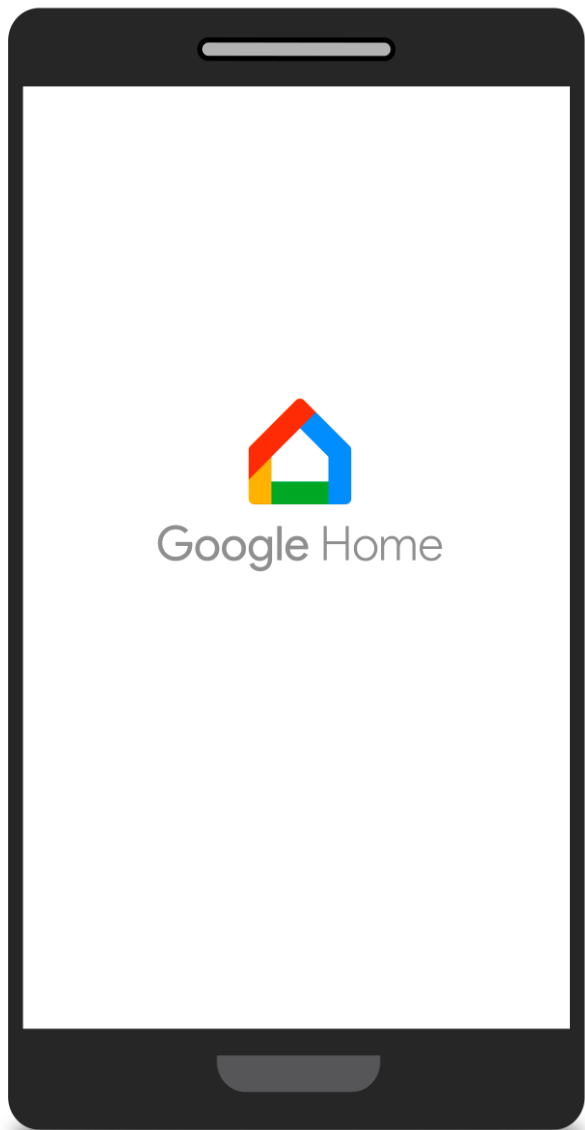
STANDALONE

GROUP

# Google's New Design



# Google's New Design

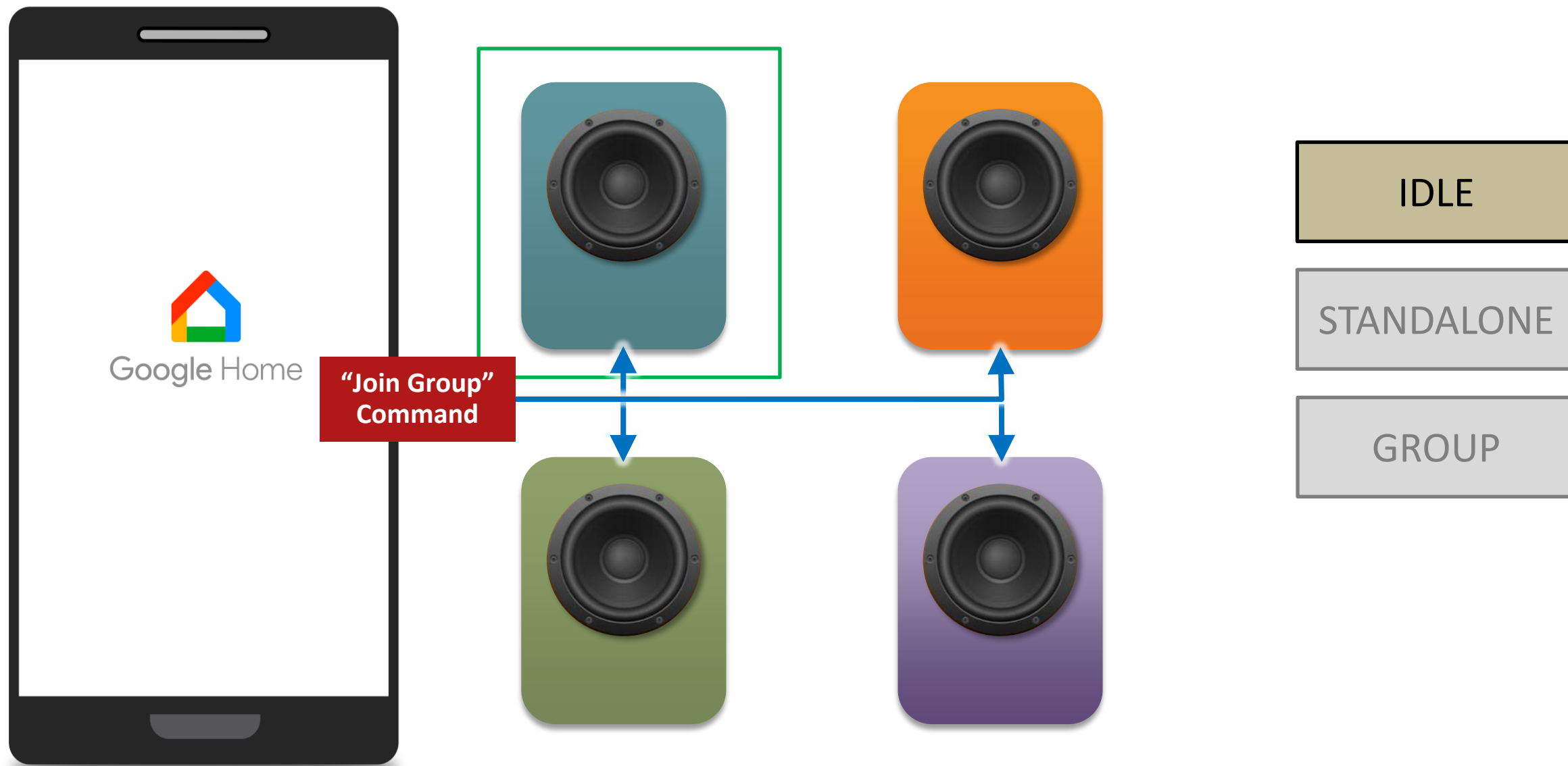


IDLE

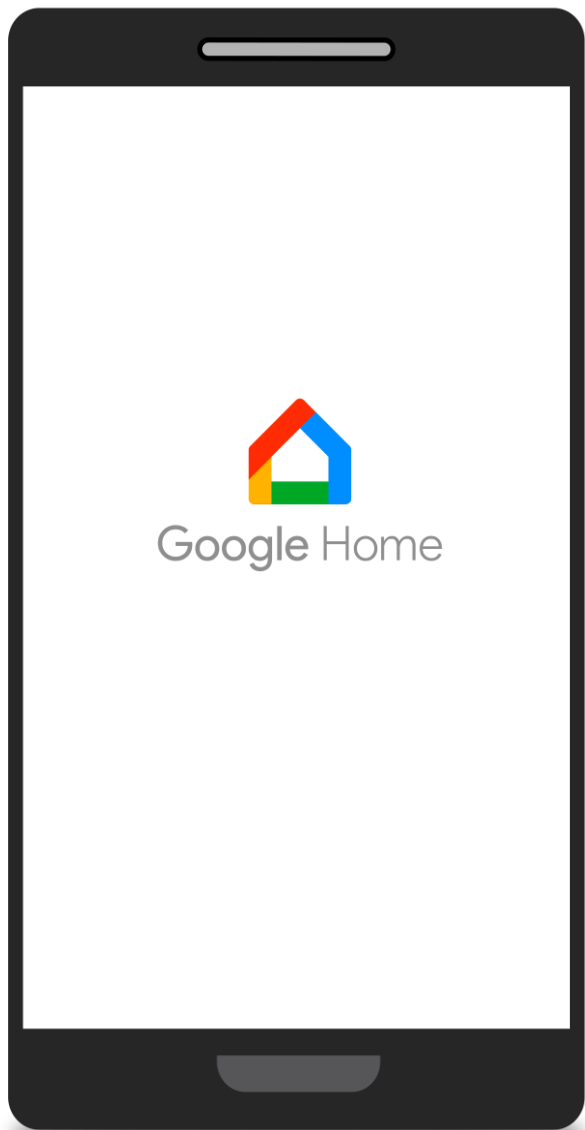
STANDALONE

GROUP

# Google's New Design



# Google's New Design



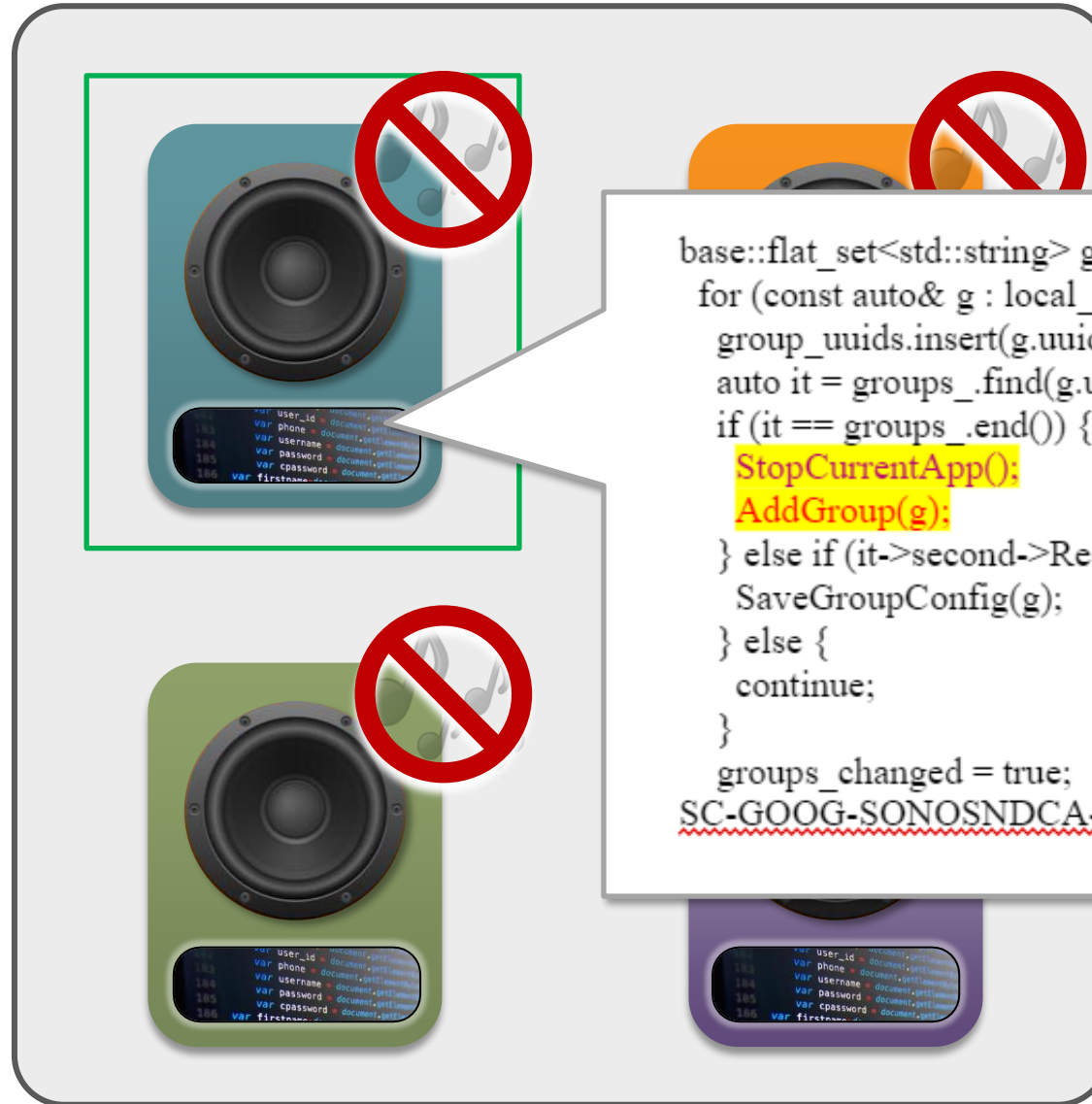
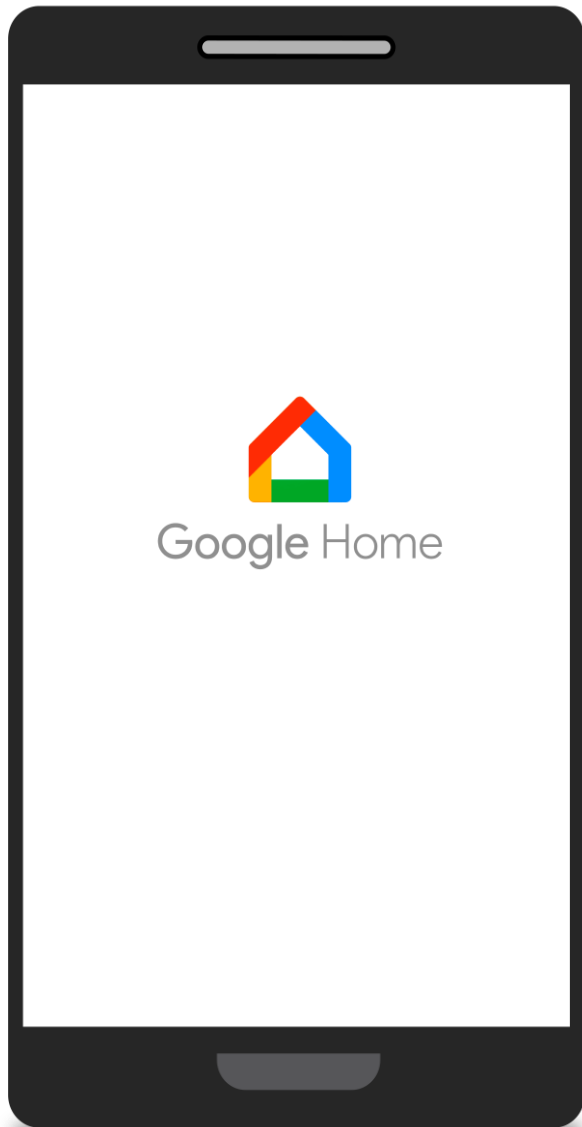
IDLE

STANDALONE

GROUP

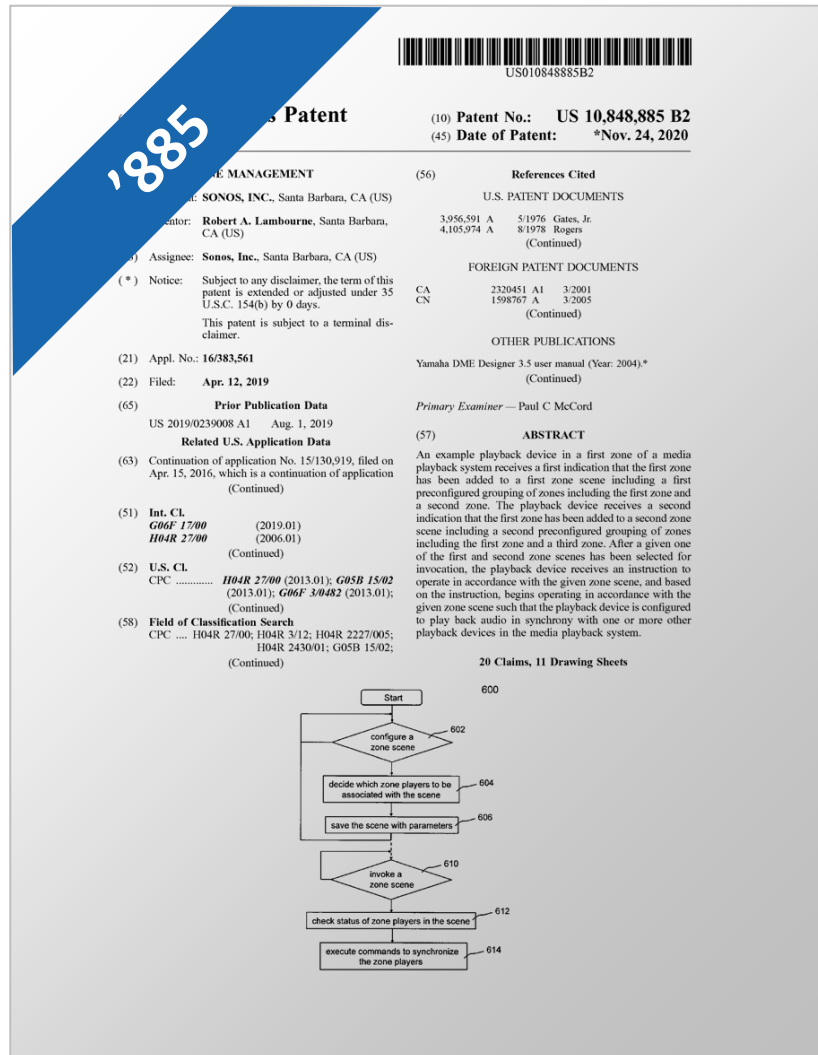


# Google's New Design



```
base::flat_set<std::string> group_uuids({virtual_group_uuid_});
for (const auto& g : local_groups) {
  group_uuids.insert(g.uuid);
  auto it = groups_.find(g.uuid);
  if (it == groups_.end()) {
    StopCurrentApp();
    AddGroup(g);
  } else if (it->second->Reconfigure(g)) {
    SaveGroupConfig(g);
  } else {
    continue;
  }
  groups_changed = true;
SC-GOOG-SONOSNDCA-001637-38.
```

# Google's New Design Does Not Infringe The '885 Patent



1. A first zone player comprising:
  - a network interface that is configured to communicatively couple the first zone player to at least one data network; one or more processors;
  - a non-transitory computer-readable medium; and
  - program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:
    - while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:
      - (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and
      - (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

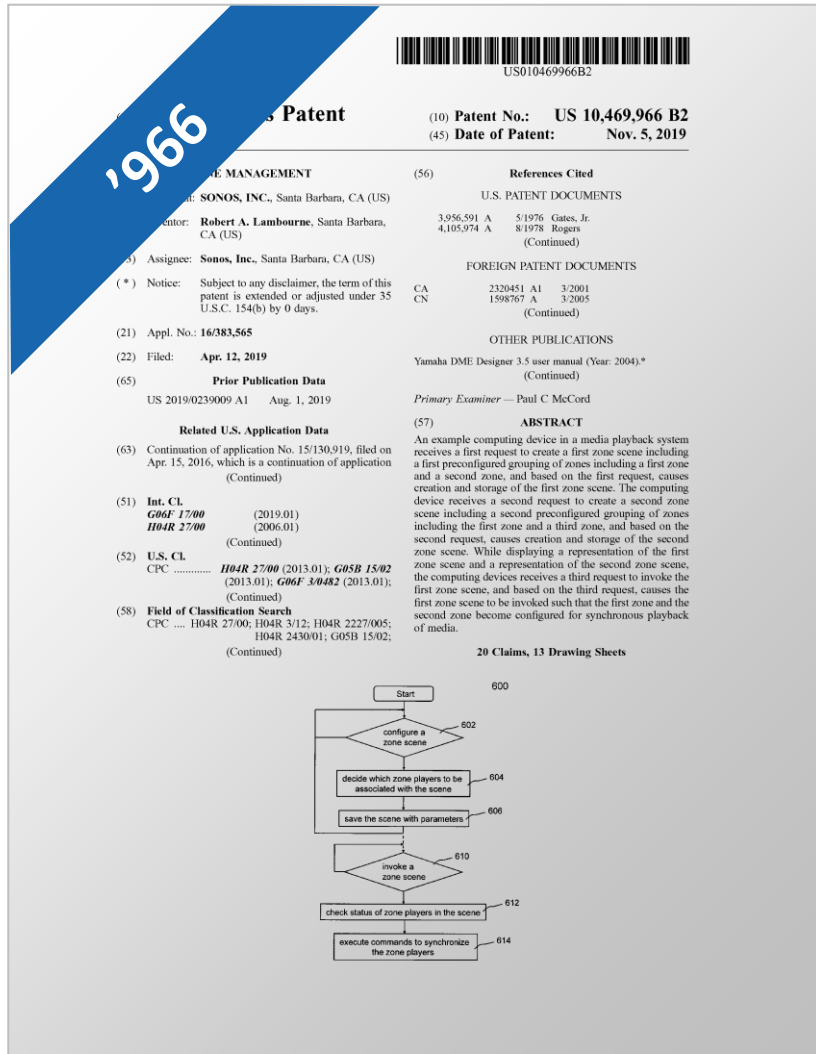
after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and

based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.

**'885 Patent, Claim 1**

# Google's New Design Does Not Infringe The '966 Patent



1. A computing device comprising: one or more processors;

a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

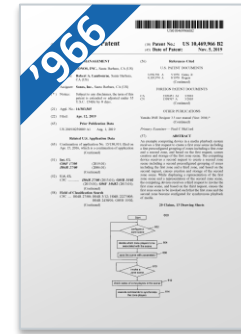
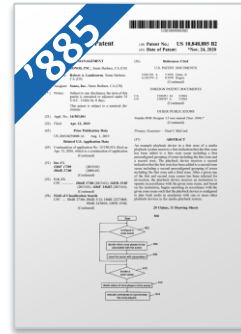
receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone

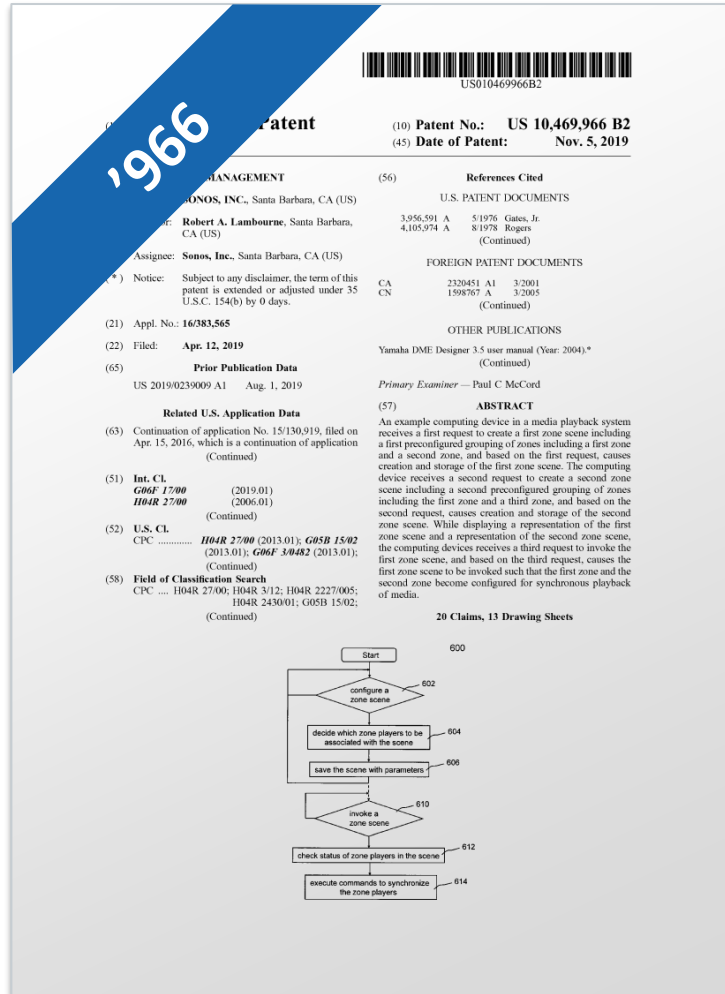
scene; displaying a representation of the first zone scene and a representation of the second zone scene; and while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

'966 Patent, Claim 1



	'885 Patent	'966 Patent
<b>New Design</b>	No operating in standalone mode	No operating in standalone mode No storage of zone scenes
<b>Old Design</b>		No storage of zone scenes



The process 600 is initiated only when a user decides to proceed with a zone scene at 602. The process 600 then moves to 604 where it allows a user to decide which zone players to be associated with the scene. For example, there are ten players in a household, and the scene is named after “Morning”. The user may be given an interface to select four of the ten players to be associated with the scene. At 606, the scene is saved. The scene may be saved in any one of the members in the scene. In the example of FIG. 1, the scene is saved in one of the zone players and displayed on the controller 142. In operation, a set of data pertaining to the scene includes a plurality of parameters. In one embodiment, the parameters include, but may not be limited to, identifiers (e.g., IP address) of the associated players and a playlist. The parameters may also include volume/tone settings for the associated players in the scene. The user may go back to 602 to configure another scene if desired.

'966 Patent, 10:36-52



## Multizone - cast\_shell integration

Author: [kmackay@google.com](mailto:kmackay@google.com) (Ken MacKay)  
 Last updated: 08-Jan-2016  
 See also: [Multizone Audio Design](#)

### Setup

[Join multizone group](#)  
[Remove multizone group](#)  
[Disband multizone group](#)  
[Calibrated audio output delay](#)  
[Changes to eureka\\_info response](#)  
[Making groups castable](#)  
[Handling group launches](#)  
[Follower-specific](#)

### Setup

Some CastV2 commands have been added to allow the Google Cast app to configure groups. Whenever one of the commands arrives, the group configuration is updated and stored in the prefs file on the device. The change is also sent to the MultizoneManager.

All multizone group management commands are in the setup namespace.

#### Join multizone group

Adds the target device to a multizone group.

```
{
  "type": "multizone/join_group",
  "data": {
    "uuid": "<group uuid>",
    "name": "<group name>",
    // optional, manually configure leader
    "leader": "" or "self" or "<leader IP>"
  },
  "request_id": <request ID>
}
```

#### Remove multizone group

Removes the target device from a multizone group.

```
{
  "type": "multizone/leave_group",
  "data": {
    "uuid": "<group uuid>"
  },
}
```

## Setup

Some CastV2 commands have been added to allow the Google Cast app to configure groups. Whenever one of the commands arrives, the group configuration is updated and stored in the prefs file on the device. The change is also sent to the MultizoneManager.

All multizone group management commands are in the setup namespace.

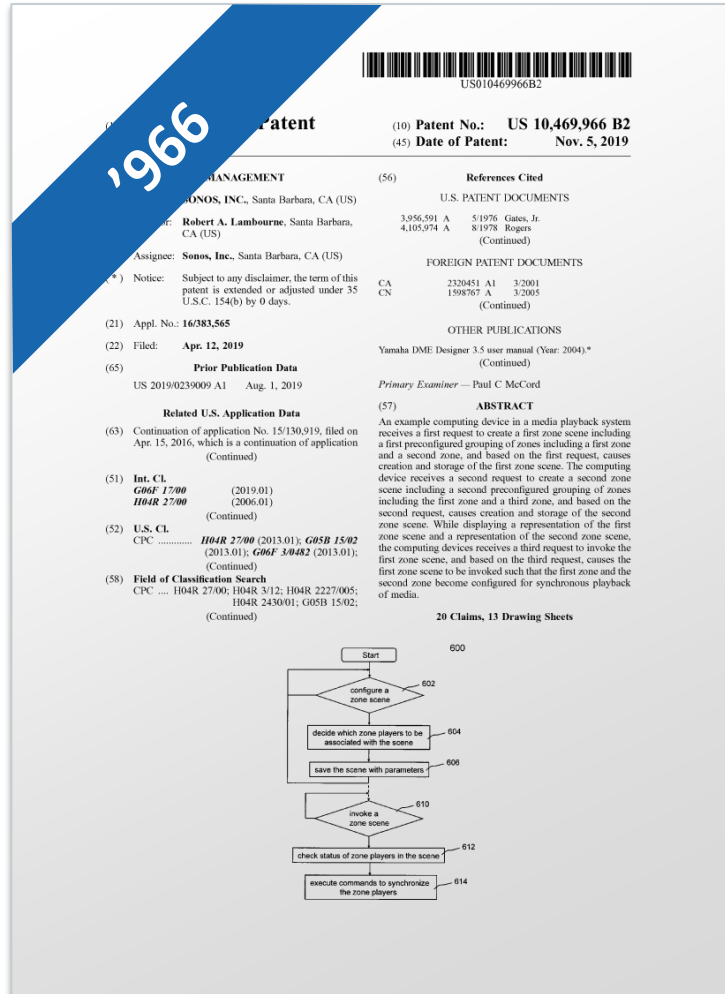
### Join multizone group

Adds the target device to a multizone group.

```
{
  "type": "multizone/join_group",
  "data": {
    "uuid": "<group uuid>",[
    "name": "<group name>",
    // optional, manually configure leader
    "leader": "" or "self" or "<leader IP>"
  ],
  "request_id": <request ID>
}
```



# The "Causing Storage" Requirement



1. A computing device comprising: one or more processors;

a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second

zone player that is to be invoked, wherein the first request is received while the first zone player is in a standalone mode;

based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third

zone player that is to be invoked, wherein the second request is received while the first zone player is in a standalone mode;

based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone

scene; displaying a representation of the first zone scene and a representation of the second zone scene; and while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

**causing storage of the first zone scene**

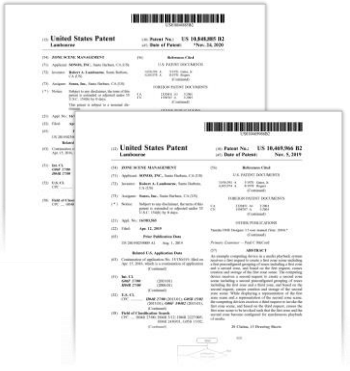
**causing storage of the second zone**

'966 patent (TX0001) at claim 1

Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 120 of 283

# Invalidity Materials Considered By Dr. Schonfeld

## Sonos Patent Documents



- '885 and '966 Patents
- '885 and '966 Patents File Histories
- Claim Construction Material

## Product Documentation



- Customer-facing Literature
- Internal Documents
- Source Code

## Sworn Testimony and Admissions



**SONOS**

- Testimony from Sonos engineers and inventors (Lambourne, Millington)
- Sonos interrogatory responses

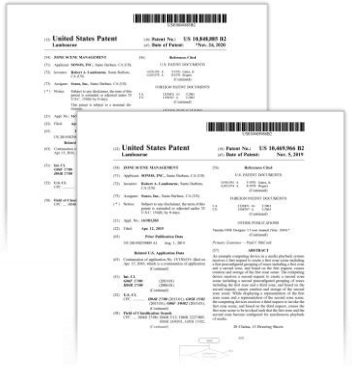
## Product Testing



- Squeezebox
- Sonos Prior Art System

# Invalidity Materials Not Considered By Patent Examiner

## Sonos Patent Documents



- '885 and '966 Patents
- '885 and '966 Patents File Histories
- Claim Construction Material

## Product Documentation



- Customer-facing Literature
- Internal Documents
- Source Code

## Sworn Testimony and Admissions



**SONOS**

- Testimony from Sonos engineers and inventors (Lambourne, Millington)
- Sonos interrogatory responses






## Product Testing

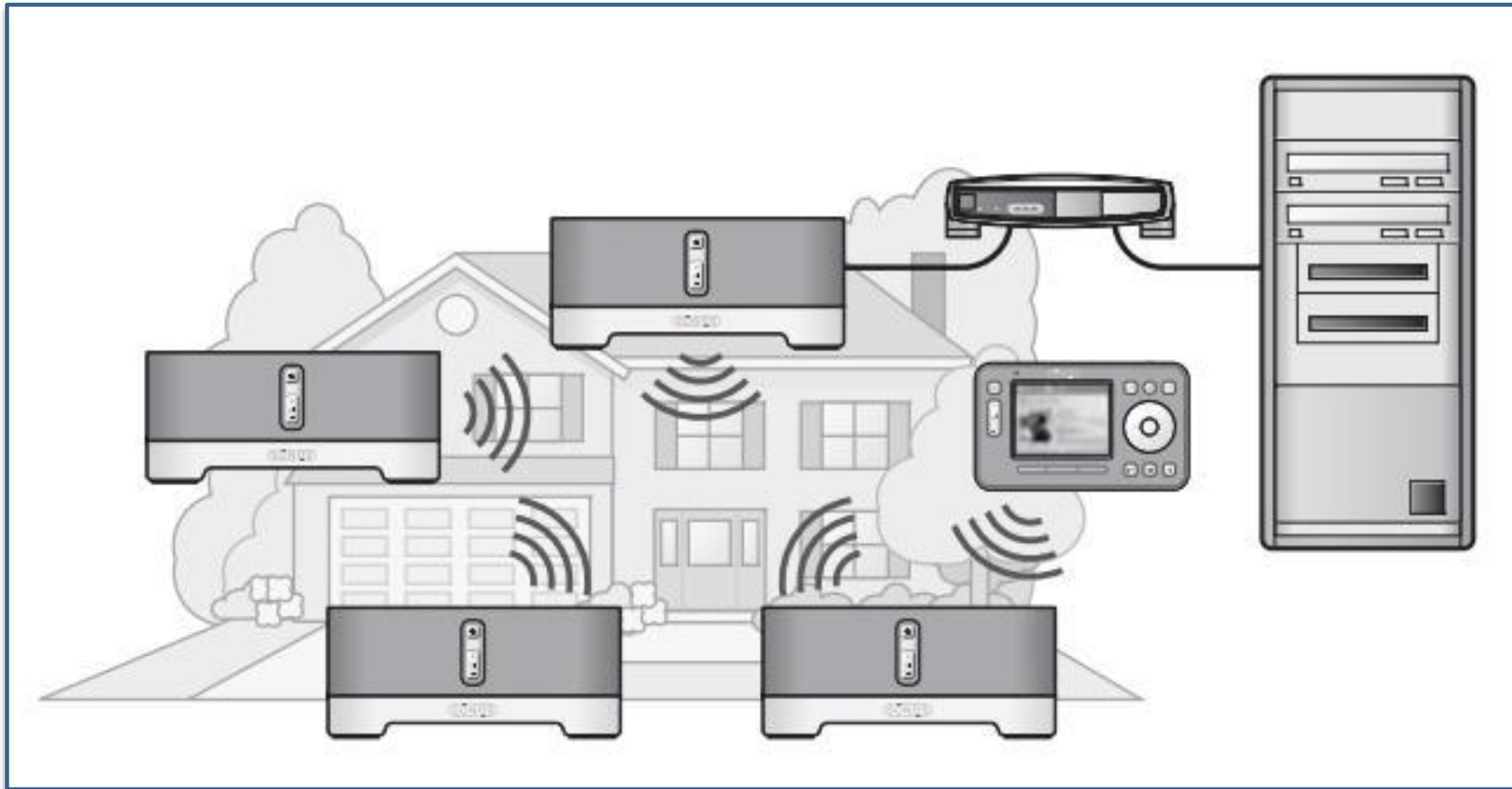


- Squeezebox
- Sonos Prior Art System

# Claim 1 of '885 Patent

Sonos 2005

[1.0] A first zone player comprising:	
[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;	
[1.2] one or more processors;	
[1.3] a non-transitory computer-readable medium; and	
[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:	
[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:	
[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and	
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;	
[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;	
[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and	
[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.	



TX0062 at 6

# Claim 1 of '885 Patent

Sonos 2005

[1.0] A first zone player comprising:



[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;



[1.2] one or more processors;



[1.3] a non-transitory computer-readable medium; and



[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:



[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:



[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and



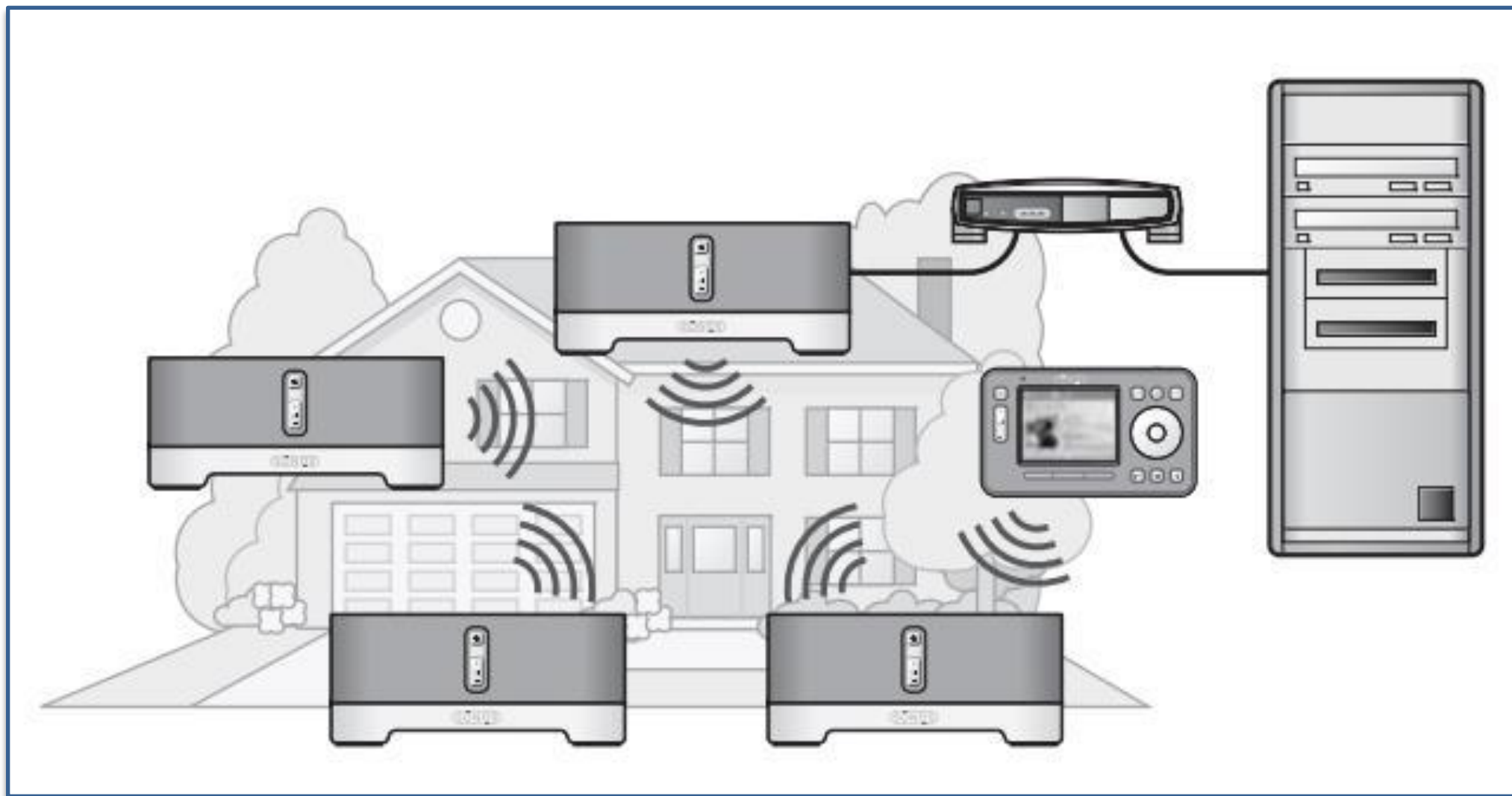
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and

[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.





TX0062 at 6

## ZonePlayer software updates

If a ZonePlayer's software version gets out of sync from the rest of your Sonos Digital Music System components, you will see the following message displayed on your **Zones** menu:

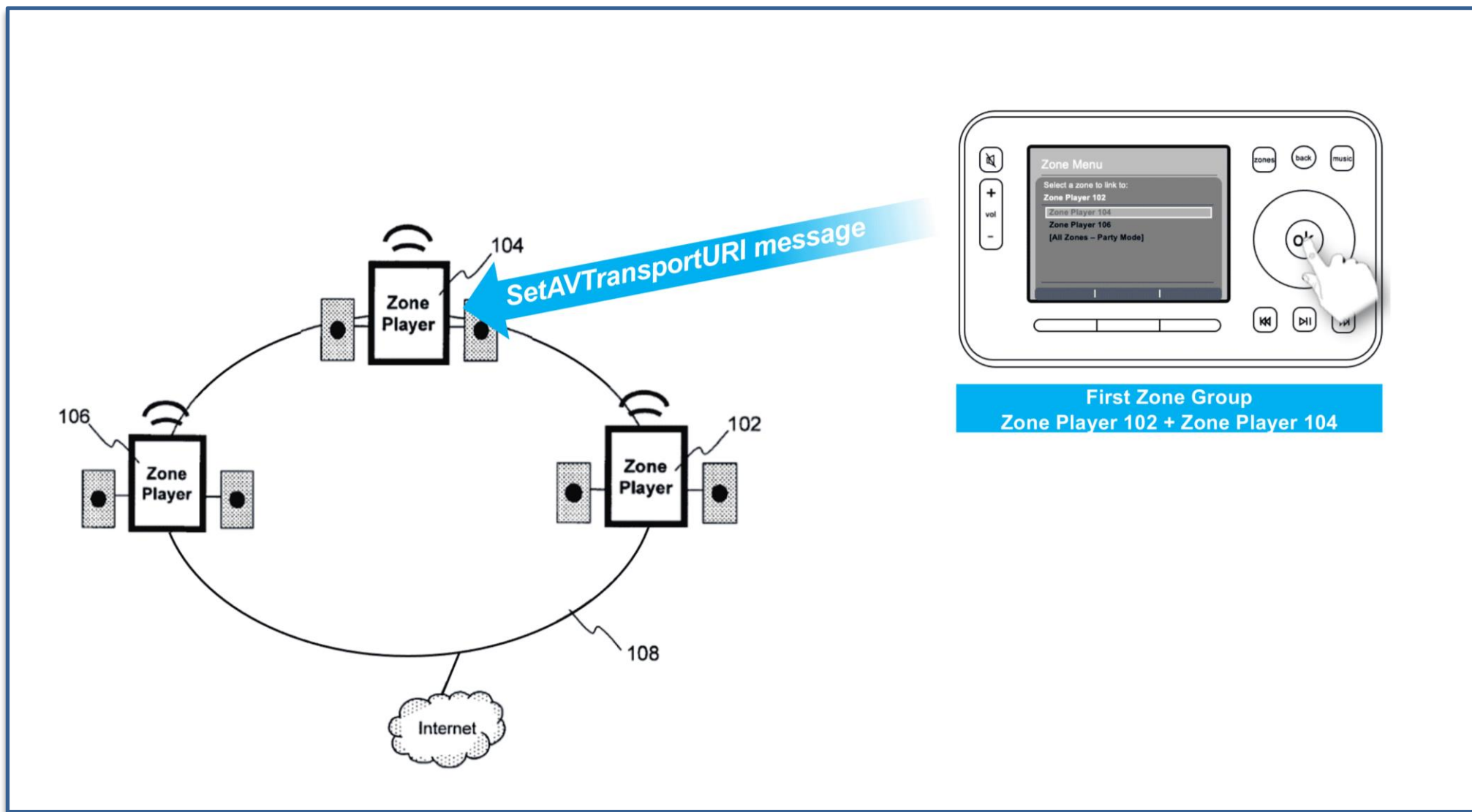


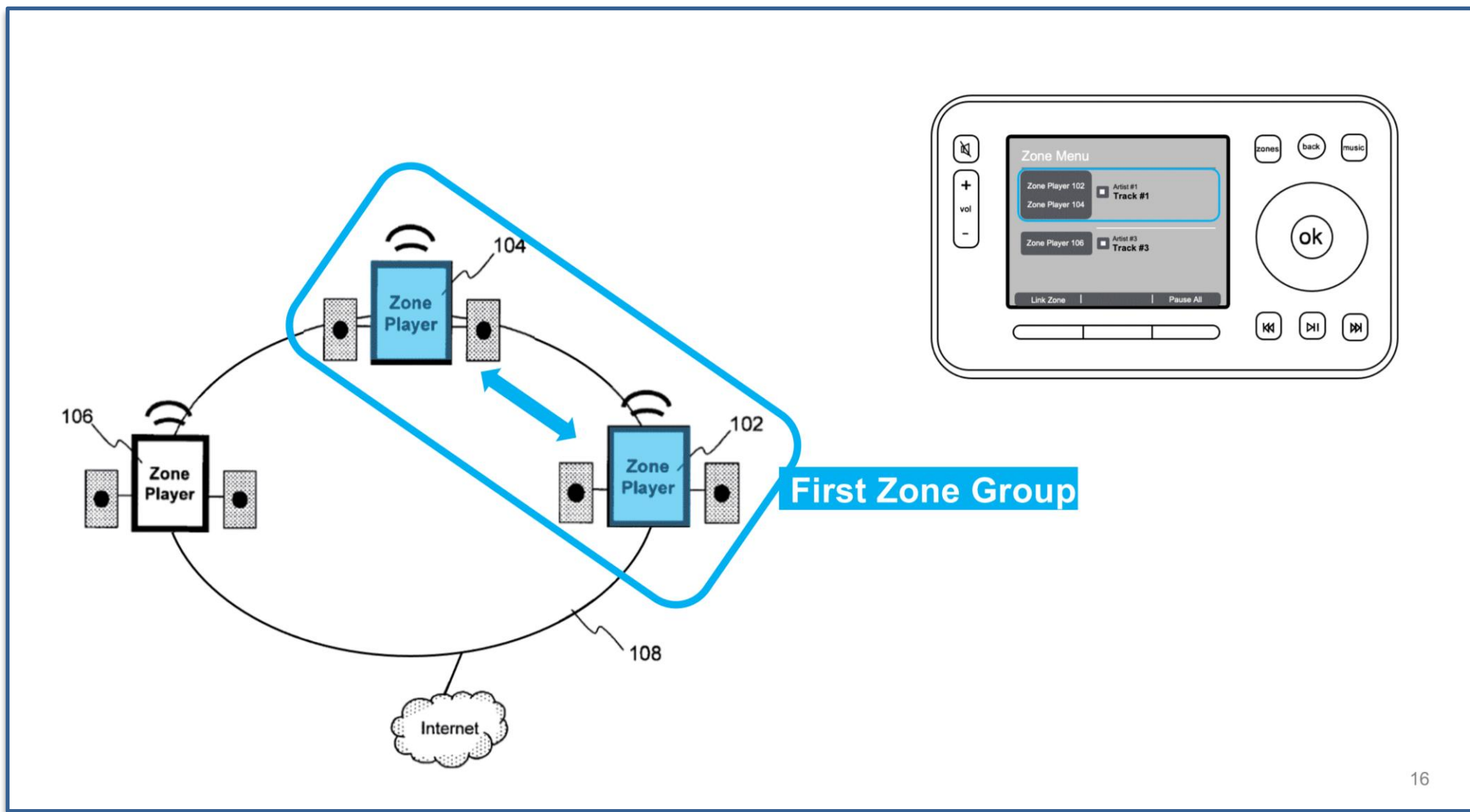
*One or more ZonePlayers may need to be updated if you purchase a new ZonePlayer with a later software version, or if you plug in a ZonePlayer that was not in use when you performed your last software update.*

*You will also see this message if you have already updated your music system using the Controller. This message will indicate that the Desktop Controller software needs to be updated.*

1. Touch **OK** to begin the software update process.

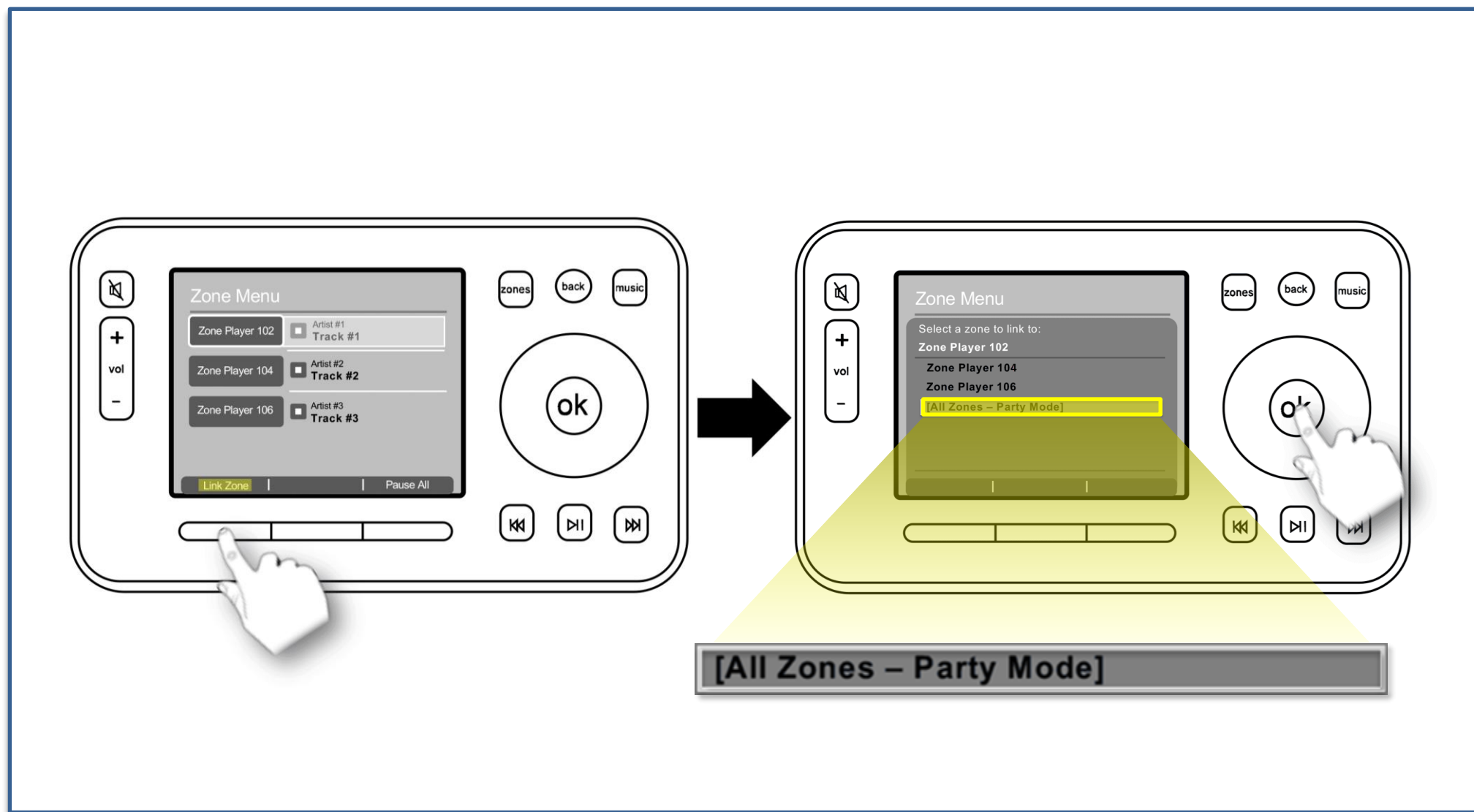
**TX0062 at 44**







TX6974 at 5





# SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

6. As part of this ad-hoc grouping technology, Sonos's controller interface also included an "All Zones-Party Mode" option, which was hard-coded into Sonos Controllers (and the Desktop Controller software) and allowed a user to create an-hoc "zone group" comprising all of the ZonePlayers in the user's system with a single touch rather than requiring the user to select each of the ZonePlayers one at a time.

7. This ad-hoc grouping technology is described in the April 2005 User Guide for the Sonos Digital Music System (SONOS-SVG2-00227441 - SONOS-SVG2-00227554):

***Zone groups***

Two or more zones can be grouped together to form a zone group, which allows you to play the same music across zones. You can also link all the ZonePlayers in your house with one touch by selecting **All Zones-Party Mode**. You can add and drop zones from a zone group while your music is playing.

**TX3923 (Lambourne Decl.)**

SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

Q. The next sentence reads: "Party Mode that currently ships with the product is one example of a zone scene." That is what you wrote; correct?

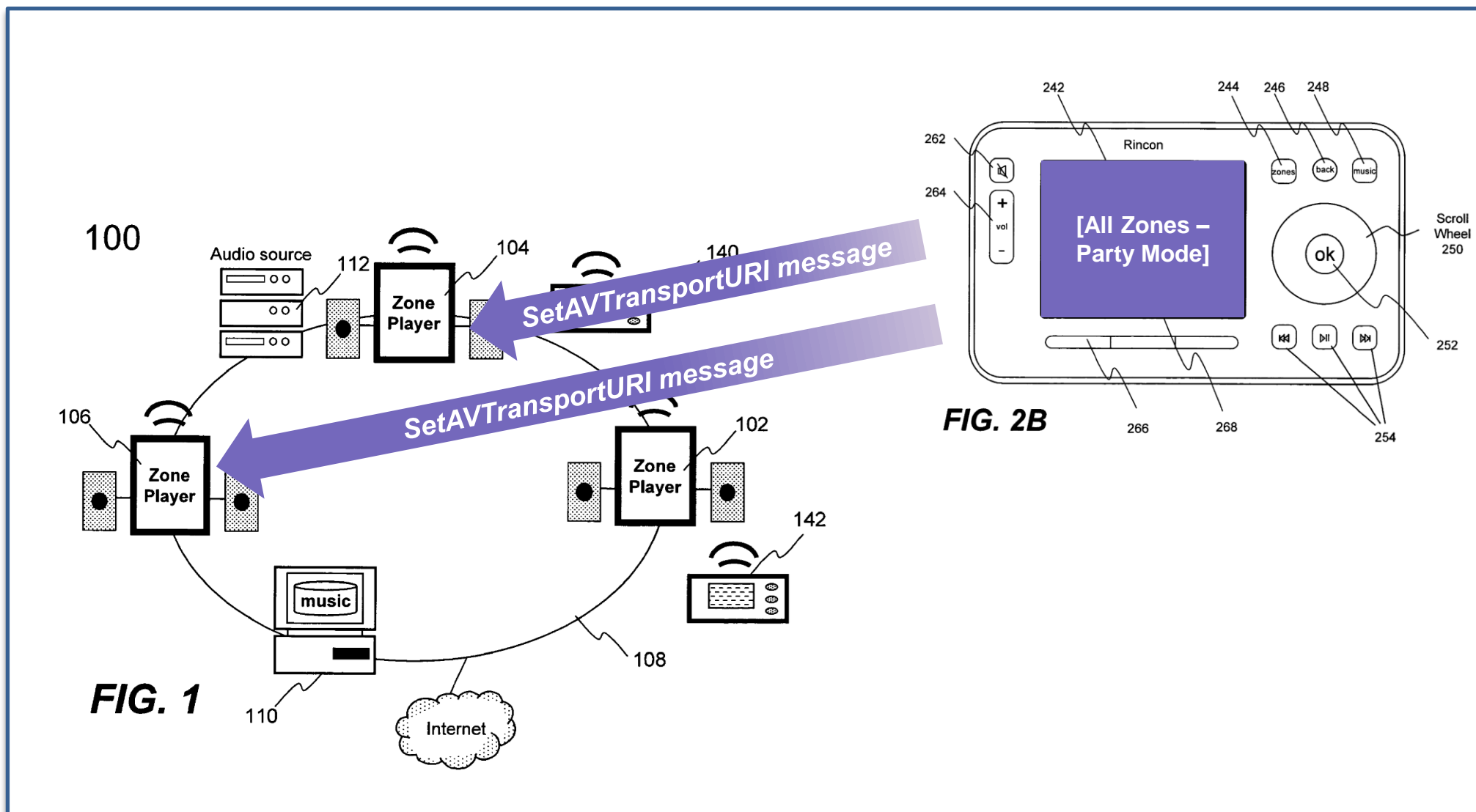
A. That's what I wrote, yes.

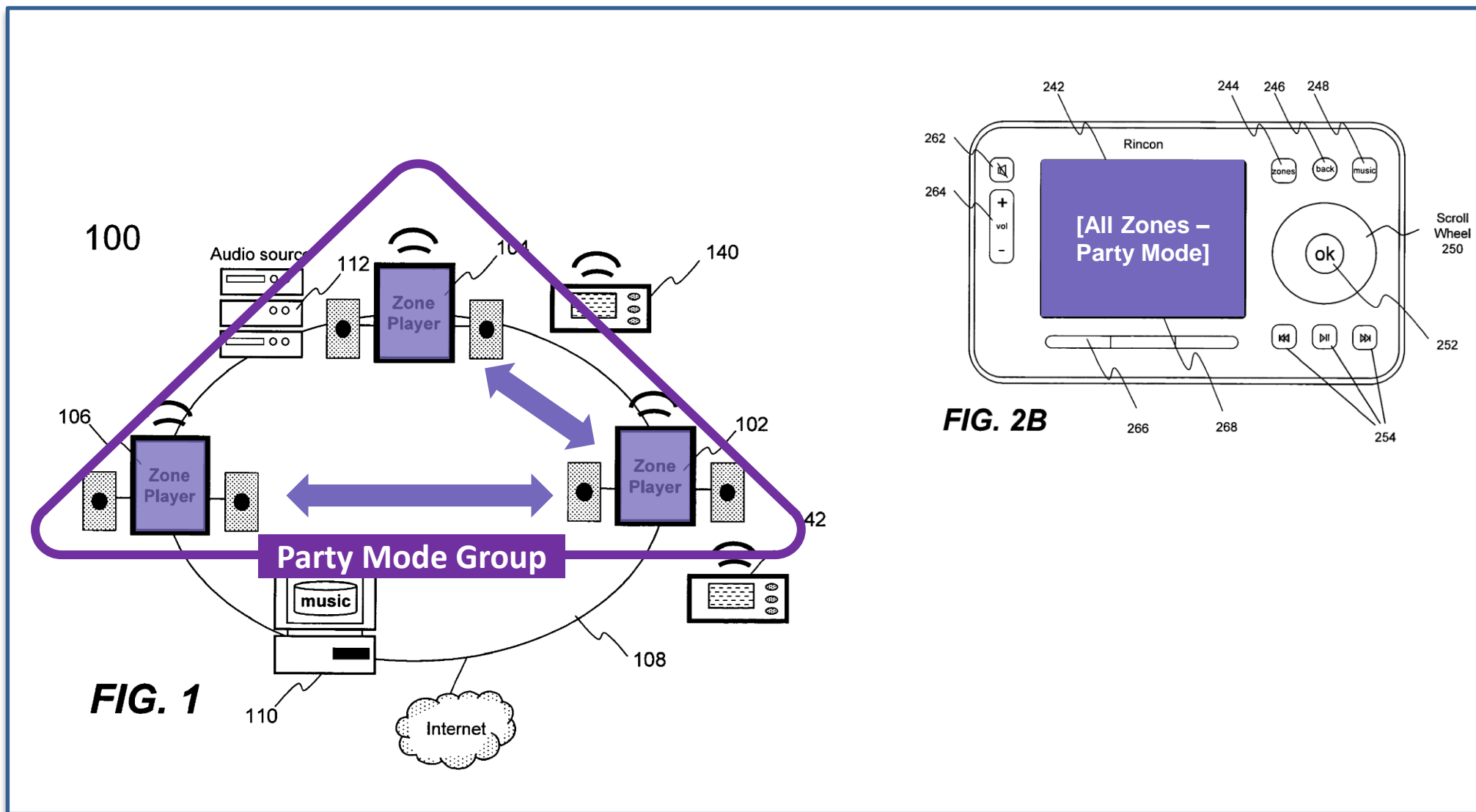
\* \* \*

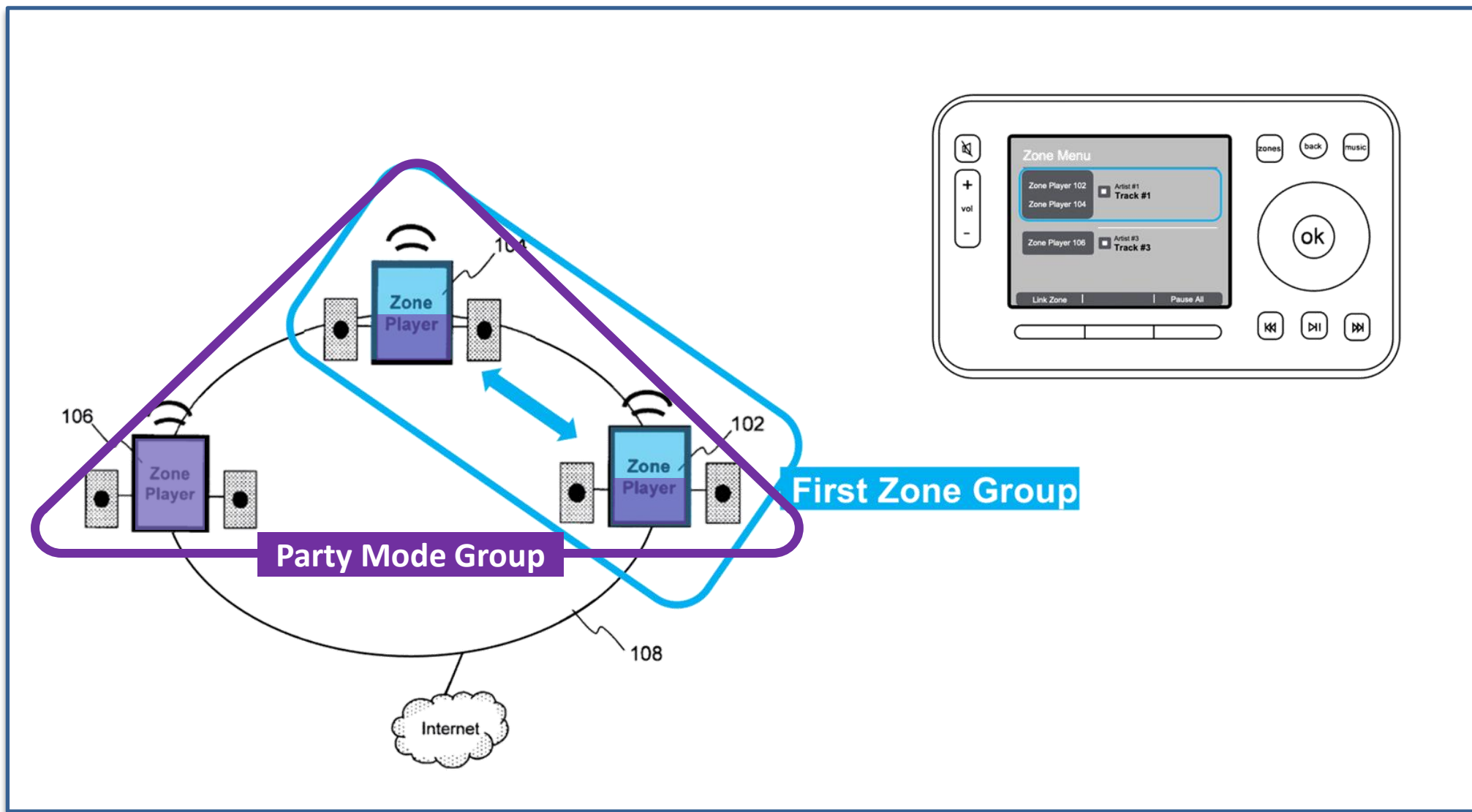
Q. Sure. When you say, "Party Mode that currently ships with the product," you were referring to the Party Mode that existed in the Sonos prior art 2005 system; correct?

A. I was referring to Party Mode of the original product, yes.

5/9/2023 Trial Tr. (Lambourne) at 520:21-521:10















# Claim 1 of '966 Patent

Sonos 2005

1.0 A <u>computing device</u> comprising:	
1.1 one or more processors;	
1.2 a non-transitory computer-readable medium; and	
1.3 program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
1.4 while <u>serving as a controller for a networked media playback system</u> comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
1.5 receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
1.6 based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;	
1.7 receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
1.8 based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
1.9 displaying a representation of the first zone scene and a representation of the second zone scene; and	
1.10 while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
1.11 based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	



*Sonos v. Google*

*Dr. Dan Schonfeld Direct Examination*



Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 138 of 283

# '885 Patent, Claim 1 vs. '966 Patent, Claim 1

## '885 Patent, Claim 1

**[1.5]** while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

**[1.6]** (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

**[1.7]** (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

**[1.8]** after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

## '966 Patent, Claim 1

**[1.4]** while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:

**[1.5]** receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;

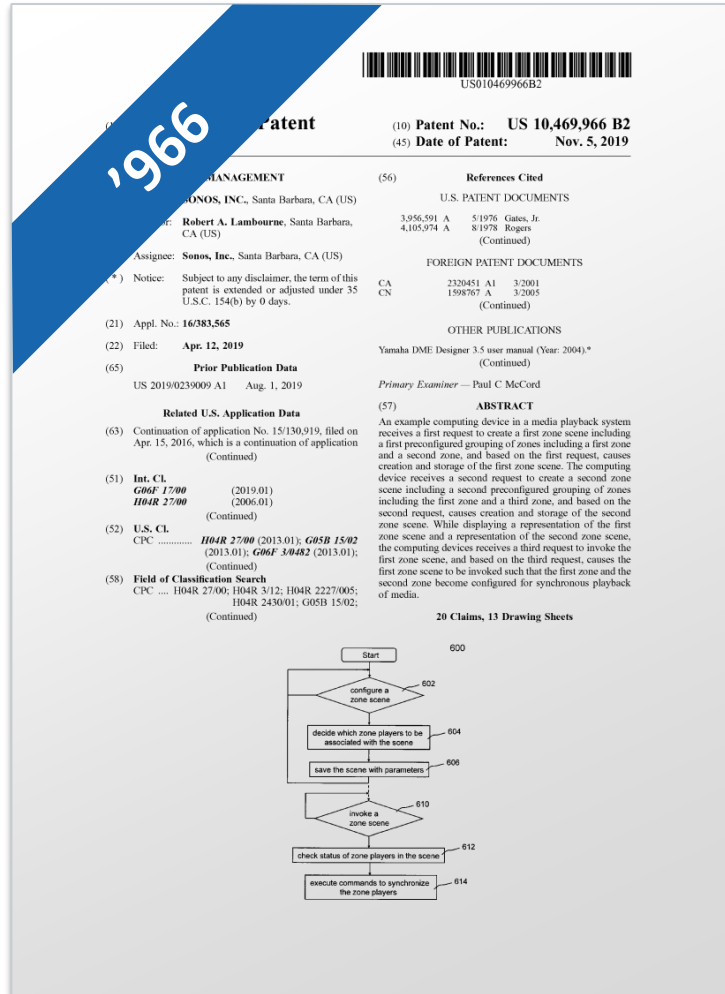
**[1.6]** based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

**[1.7]** receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

**[1.8]** based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;

**[1.9]** displaying a representation of the first zone scene and a representation of the second zone scene; and

# The "Causing Storage" Requirement



1. A computing device comprising: one or more processors;

a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second

zone player that is to be used for playback of media;

based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third

zone player that is to be used for playback of media; and invoking the second zone scene, wherein the second zone scene is invoked, wherein the second zone player;

based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone

scene; displaying a representation of the first zone scene and a representation of the second zone scene; and while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

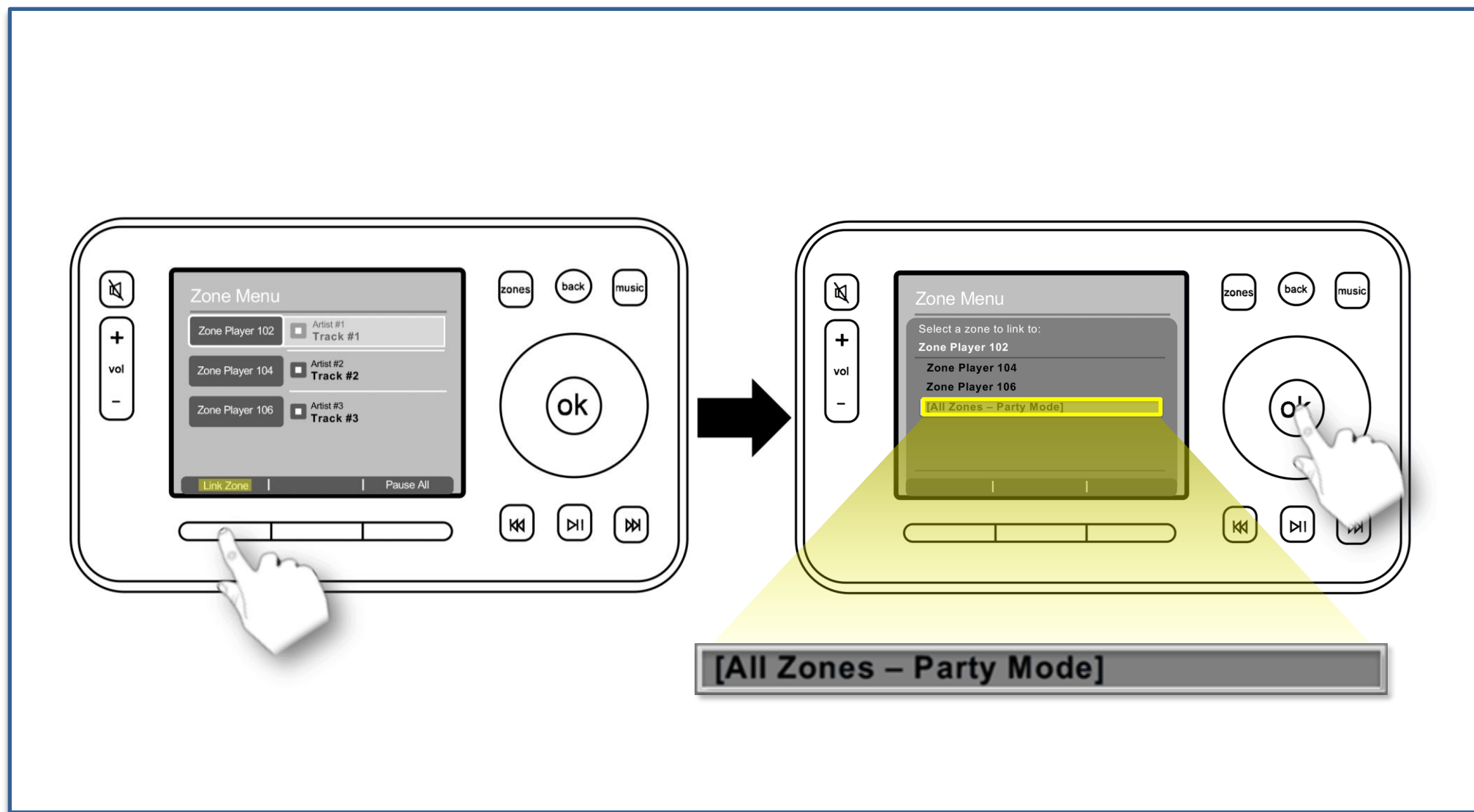
**causing storage of the first zone scene**

**causing storage of the second zone**

'966 patent (TX0001) at claim 1











TX6974 at 5



# Claim 1 of '966 Patent










Sonos 2005

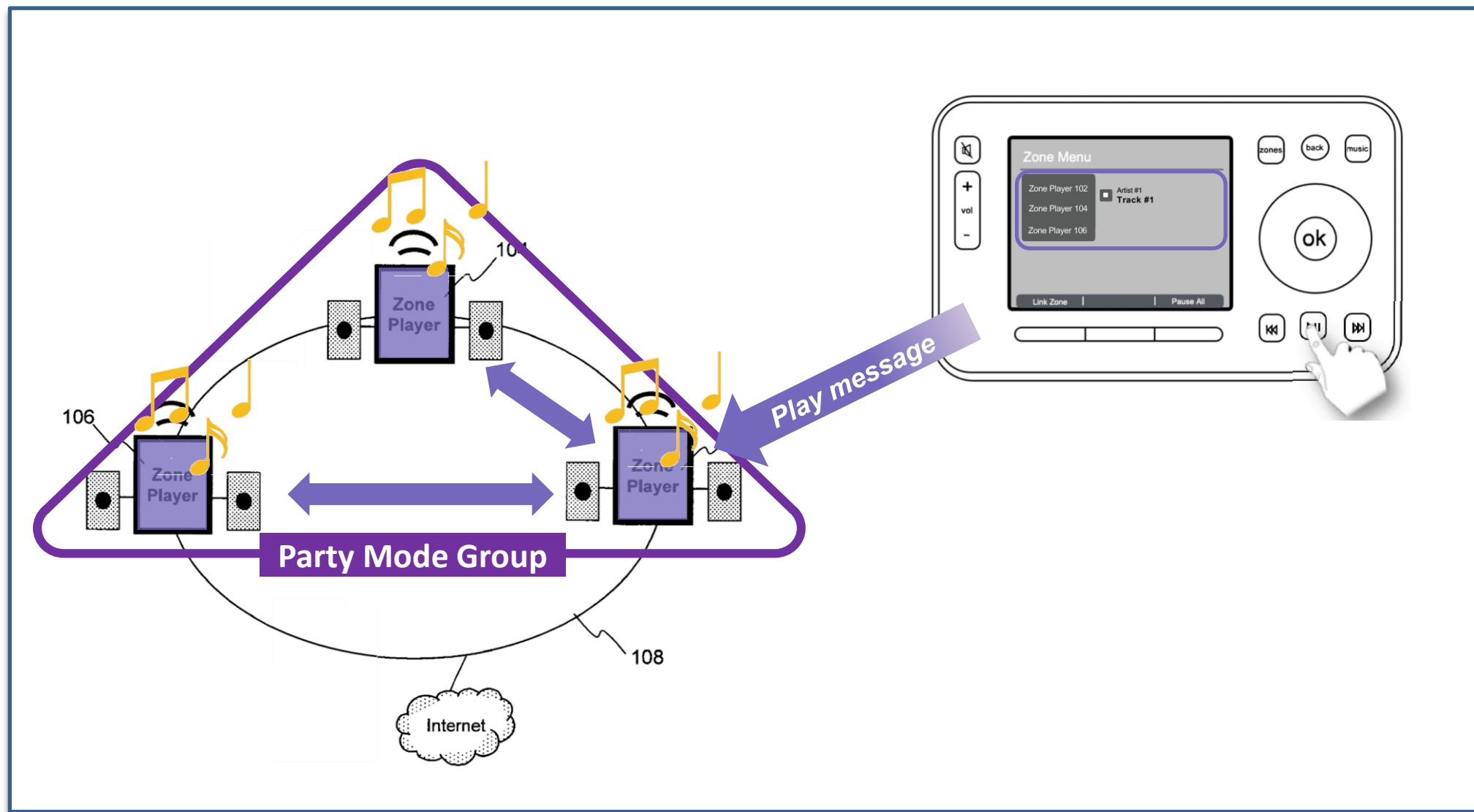
1.0 A <u>computing device</u> comprising:	
1.1 one or more processors;	
1.2 a non-transitory computer-readable medium; and	
1.3 program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
1.4 while <u>serving as a controller for a networked media playback system</u> comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
1.5 receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
1.6 based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;	
1.7 receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
1.8 based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
1.9 displaying a representation of the first zone scene and a representation of the second zone scene; and	
1.10 while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
1.11 based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	



# Claim 1 of '885 Patent











Sonos 2005

[1.0] A first zone player comprising:	
[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;	
[1.2] one or more processors;	
[1.3] a non-transitory computer-readable medium; and	
[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:	
[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:	
[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and	
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;	
[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;	
[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and	
[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.	



# Claim 1 of '966 Patent

Sonos 2005

<b>1.0</b> A computing device comprising:	
<b>1.1</b> one or more processors;	
<b>1.2</b> a non-transitory computer-readable medium; and	
<b>1.3</b> program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
<b>1.4</b> while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
<b>1.5</b> receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
<b>1.6</b> based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;	
<b>1.7</b> receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
<b>1.8</b> based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
<b>1.9</b> displaying a representation of the first zone scene and a representation of the second zone scene; and	
<b>1.10</b> while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
<b>1.11</b> based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	

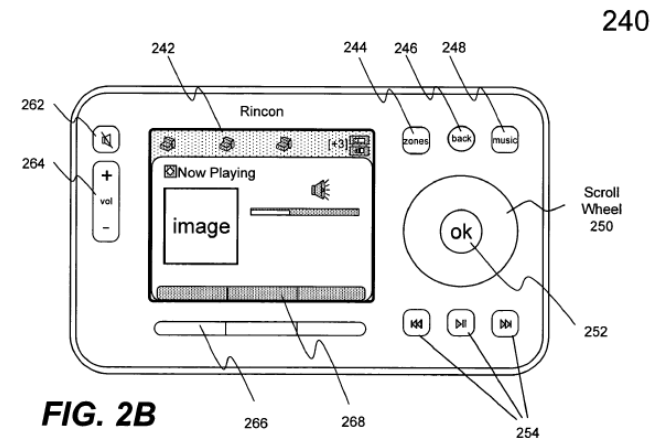


*Sonos 2005 System*

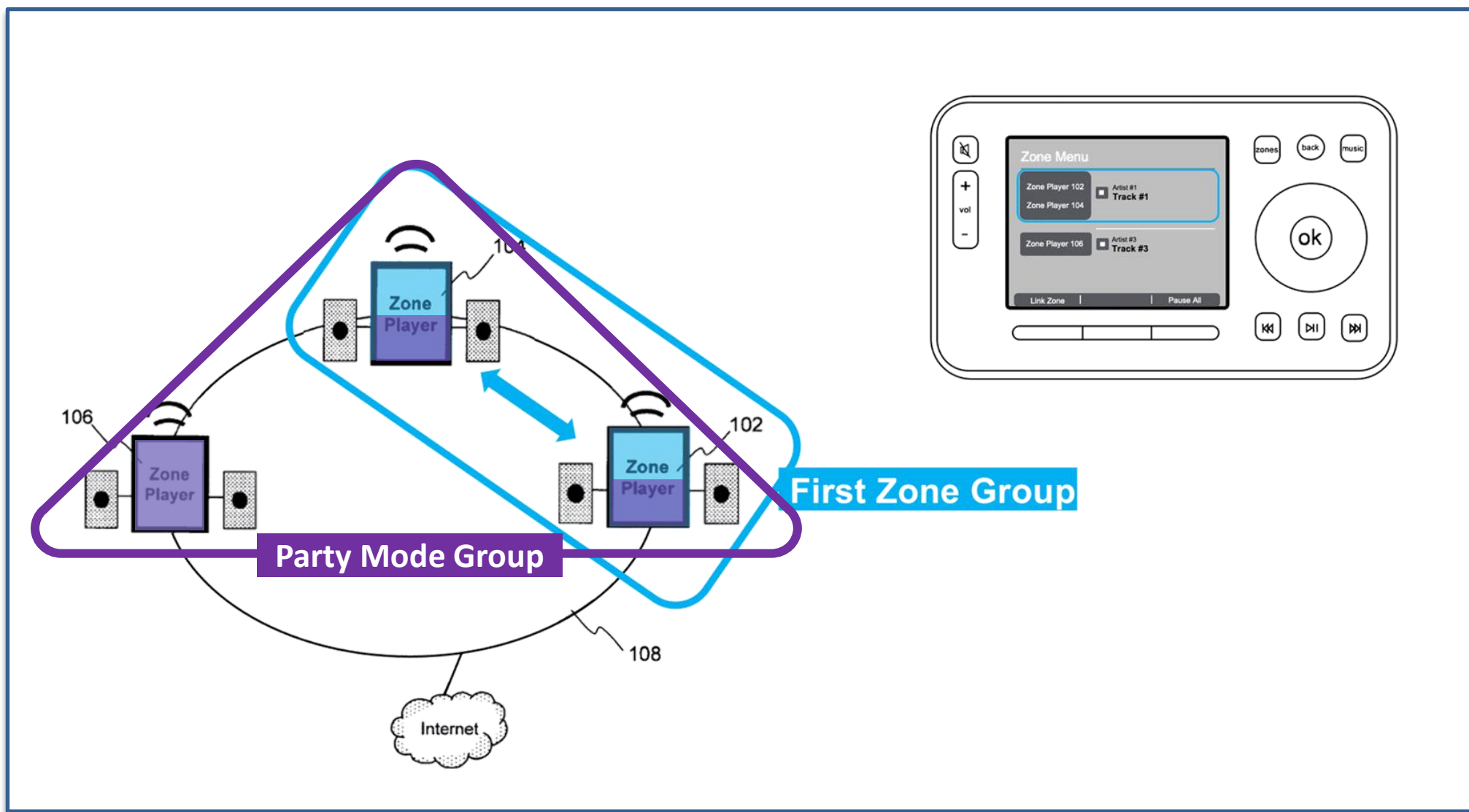


**Save 2nd Group**












*Alleged Invention*



**FIG. 2B**



**Claim 1 of '885 Patent**

[1.0] A first zone player comprising:	
[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;	
[1.2] one or more processors;	
[1.3] a non-transitory computer-readable medium; and	
[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:	
[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:	
[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and	
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;	
[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;	
[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and	
[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.	





## Configure Preset Groups

Preset groups can be created to group speakers in adjacent rooms with a specified source, or switch into a whole-house "party" mode, by letting the user link a source with any number of rooms. Changing the source in any one room changes the source in all of the rooms in the preset group.

TX3698 at 66

# Groups

\* Party  
Dine  
Read

## Party Mode and Other Room Groups

*Party* mode and other room groups are preset settings used to recall source/room combinations.

Press the **PARTY MODE** button to activate the *Party* mode.

For instructions on customizing the *Party* mode, refer to “Configure Preset Groups” on page 62.

To recall a room group:

- While in *Room* mode, press the **MORE** button.
- Press the soft button labeled **Groups** to display the list of groups.

### Groups Listing

SOURCE <input type="text"/>	<div style="background-color: yellow; padding: 5px;"> <b>Groups</b>            * <u>Party</u>            Dine            Read         </div>	<input type="text"/> SURRND
ROOM <input type="text"/>		<input type="text"/> THEATER
HOUSE <input type="text"/>		<input type="text"/> DISPLAY
MENU <input type="text"/>		<input type="text"/> MORE

Setup

Active groups are indicated with an asterisk (\*).













- Turn the selection knob to highlight the desired group and press **ENTER**.

Dec 2005  
Conception Date












Sep 2006  
Provisional  
Filing Date

TX3698 at  
99-100

**Claim 1 of '966 Patent**

<b>1.0</b> A computing device comprising:	
<b>1.1</b> one or more processors;	
<b>1.2</b> a non-transitory computer-readable medium; and	
<b>1.3</b> program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
<b>1.4</b> while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
<b>1.5</b> receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
<b>1.6</b> based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;	
<b>1.7</b> receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
<b>1.8</b> based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
<b>1.9</b> displaying a representation of the first zone scene and a representation of the second zone scene; and	
<b>1.10</b> while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
<b>1.11</b> based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	

# Claim 1 of '885 Patent

[1.0] A first zone player comprising:	
[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;	
[1.2] one or more processors;	
[1.3] a non-transitory computer-readable medium; and	
[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:	
[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:	
[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and	
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;	
[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;	
[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and	
[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.	

## Virtual Zones and Zone Grouping

17 years ago · 190 replies · 45377 views

27 February 2005



theboyg Avid Contributor I · 22 replies

This "link/unlink" business is really cumbersome - and not a joy to use which goes against the ease of use of the rest of the system.

Why can't I have a virtual zone - ie a zone called "Downstairs" - and I can group all my downstairs zones into this. Then I dont have to keep manually linking/unlinking multiple zones everytime.

PLEASE !

G.



2 people like this



Like



Quote



Share

TX2424

16 years ago · 61 replies · 15122 views

22 September 2005



JeffT Trending Lyricist I · 20 replies

Just got the intro bundle, and I am impressed. I did a search and did not find this suggested, but I would save Zone links as favorites. With only 2 ZPs it is not a problem yet, but when I add more it maybe. I would like to setup say Morning mode for the units I want in the morning and a preset volume between the units. Another example I would have 2 party modes, Summer and Winter. The Summer mode would include the deck speakers and the Winter mode would not. Also it would be nice to have playlists or radio station associated with each mode. So when I get up I press Morning the DI Chill radio station plays.

TX3930 at 1



floras\_dad Lyricist III · 20 replies

17 years ago

Great idea. A macro-like scripter would enable you to set groups of zones, associate pl volumes, etc. You could do these as dynamic "presets" based on the Party Mode--which the spouse would love--like Entertaining, Romantic Dinner, Ambiance, etc.

This is a great like-to-have.

TX3928 at 3

## SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

- Q. So Mr. Greenwood, in this prior public posting about the Sonos 2005 system, was describing the same type of problem that you were trying to solve with zone scenes and suggesting macros, which is a similar solution to what you had in mind for that functionality; correct?
- A. In broad terms, yes. As an outcome, yes.

5/9/2023 Trial Tr. (Lambourne) at 541:2-7



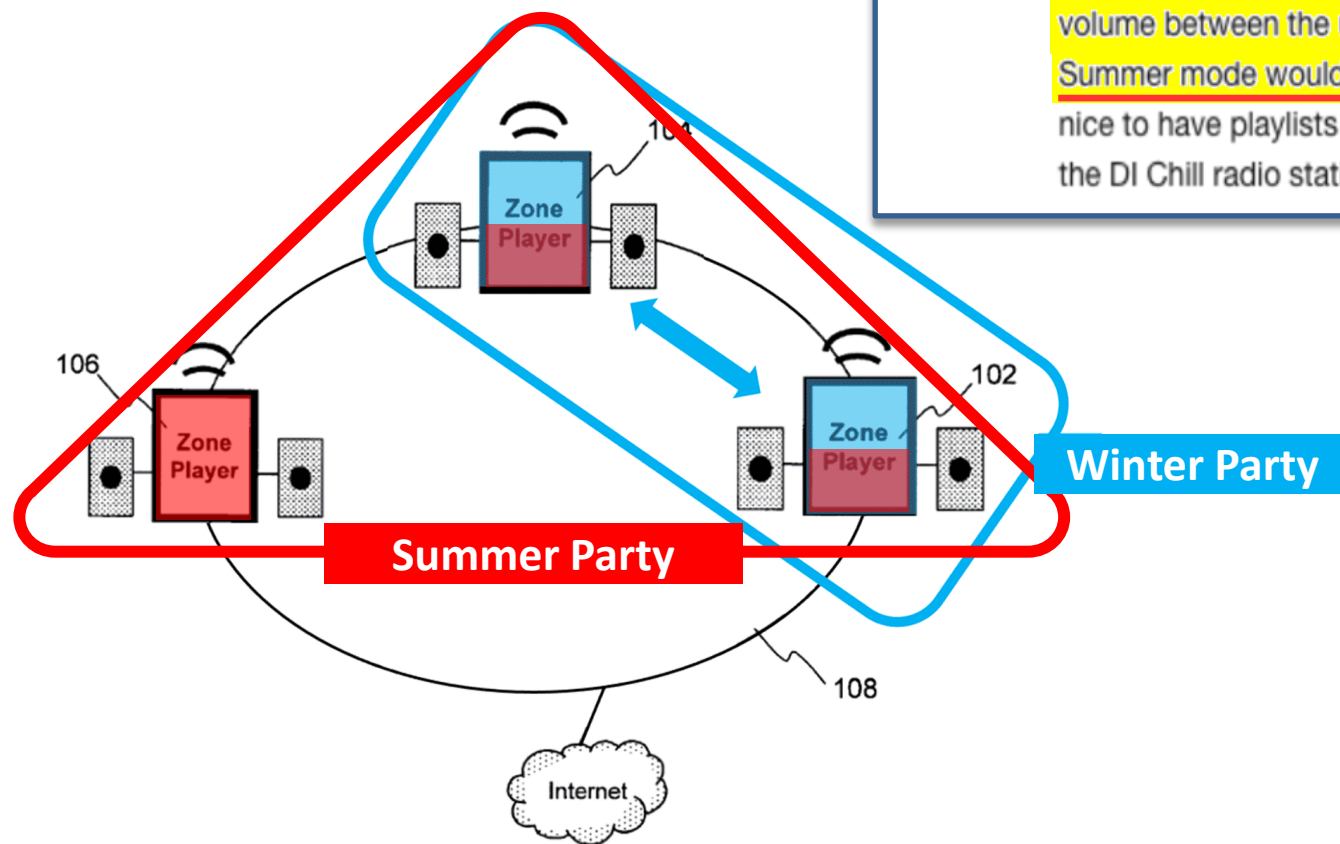
16 years ago • 61 replies • 15122 views

22 September 2005



JeffT Trending Lyricist I • 20 replies

Just got the intro bundle, and I am impressed. I did a search and did not find this suggested, but I would save Zone links as favorites. With only 2 ZPs it is not a problem yet, but when I add more it maybe. I would like to setup say Morning mode for the units I want in the morning and a preset volume between the units. Another example I would have 2 party modes, Summer and Winter. The Summer mode would include the deck speakers and the Winter mode would not. Also it would be nice to have playlists or radio station associated with each mode. So when I get up I press Morning the DI Chill radio station plays.



TX3930 at 1

# SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

Q. What Jeff T, the user, was describing in a publicly available Sonos forum posting dated September 22nd, 2005, is having multiple zone scenes that are saved for later; correct?

A. Yes.













\* \* \*

Q. And those zone scenes could be overlapping in that they would share a speaker or a ZonePlayer; correct?












A. Yes, and in the summer and winter mode he is describing, yes.

5/9/2023 Trial Tr. (Lambourne) at 539:17-24

# Claim 1 of '966 Patent

<b>1.0</b> A computing device comprising:	
<b>1.1</b> one or more processors;	
<b>1.2</b> a non-transitory computer-readable medium; and	
<b>1.3</b> program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
<b>1.4</b> while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
<b>1.5</b> receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
<b>1.6</b> based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;	
<b>1.7</b> receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
<b>1.8</b> based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
<b>1.9</b> displaying a representation of the first zone scene and a representation of the second zone scene; and	
<b>1.10</b> while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
<b>1.11</b> based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	

**Claim 1 of '885 Patent**

[1.0] A first zone player comprising:	
[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;	
[1.2] one or more processors;	
[1.3] a non-transitory computer-readable medium; and	
[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:	
[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:	
[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and	
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;	
[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;	
[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and	
[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.	

Sep 2002  
Nourse



US007197148B2

(12) **United States Patent**  
**Nourse et al.**

(10) **Patent No.:** **US 7,197,148 B2**  
(45) **Date of Patent:** **Mar. 27, 2007**

(54) **SYSTEM FOR CONTROLLING REMOTE SPEAKERS USING CENTRALIZED AMPLIFIERS, CENTRALIZED MONITORING AND MASTER/SLAVE COMMUNICATION PROTOCOL**

(75) Inventors: **James D. Nourse**, Wernersville, PA (US); **Keith R. Youndt**, Pottstown, PA (US)

(73) Assignee: **Hakell Incorporated**, Oregon, CT

3,989,908 A 11/1976 Budrys et al. .... 179/175.1  
4,550,400 A 10/1985 Henderson, Jr. et al. .... 370/85  
4,621,374 A 11/1986 Micic et al. .... 455/603  
4,683,591 A 7/1987 Dawson et al. .... 381/85  
4,862,159 A 8/1989 Marusa et al. .... 340/825.24  
4,953,218 A 8/1990 Hughes, Jr. .... 381/82  
5,054,076 A 10/1991 Lowell .... 381/109  
5,260,704 A 11/1993 Hustig et al. .... 341/144  
5,406,634 A \* 4/1995 Anderson et al. .... 381/82  
5,481,478 A \* 1/1996 Palmieri et al. .... 709/208  
5,561,412 A 10/1996 Novak et al. .... 340/286.07  
Wakai et al. .... 381/77  
Ulrich et al. .... 340/286.07  
Gallant et al. .... 340/286.07  
Costa et al. .... 381/81  
Wakai et al. .... 381/77  
Ulrich et al. .... 340/286.07

(57)

### ABSTRACT

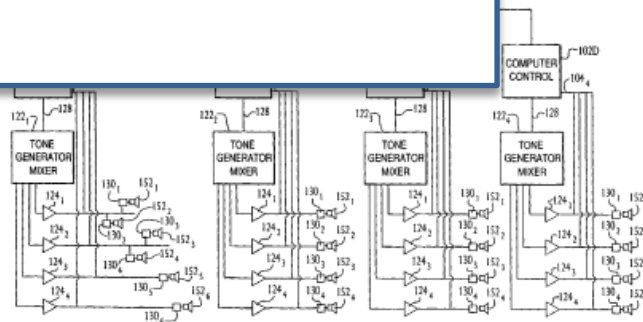
An apparatus and method for providing a centralized speaker system that allows multiple speakers connected to a central amplifier speaker line to be monitored and controlled from a central location via a master/slave protocol. The centralized speaker system comprises a central station for selectively communicating at least one of a command and an information signal to a destination device. A tone generator is adapted to communicate an activation tone to the destination device. An amplifier, which is colocated with the central station, is adapted to amplify the signals to the destination device.

n Chin  
P. Tran  
Firm—Stacey J. Longanecker,  
Goodman

### STRACT

nd for providing a centralized multiple speakers connected to a ne to be monitored and controlled ia a master/slave protocol. The a comprises a central station for at least one of a command and an ation device. A tone generator e an activation tone to the destier, which is colocated with the d to amplify the signals to the

7 Drawing Sheets



Dec 2005  
Conception Date

Sep 2006  
Alleged Priority  
Date

TX6513

Each of the plurality of speakers 152 preferably has a unique 16-bit address. Each of the plurality of speakers 152 can further be assigned up to four group identifiers (IDs), allowing as many as 255 possible group assignments for the plurality of speakers 152 for each of the four groups. The

or as part of a group. Thus, each remote speaker and each group are capable of receiving unique content specific, respectively, to the individual remote speaker address and group address.

TX6513

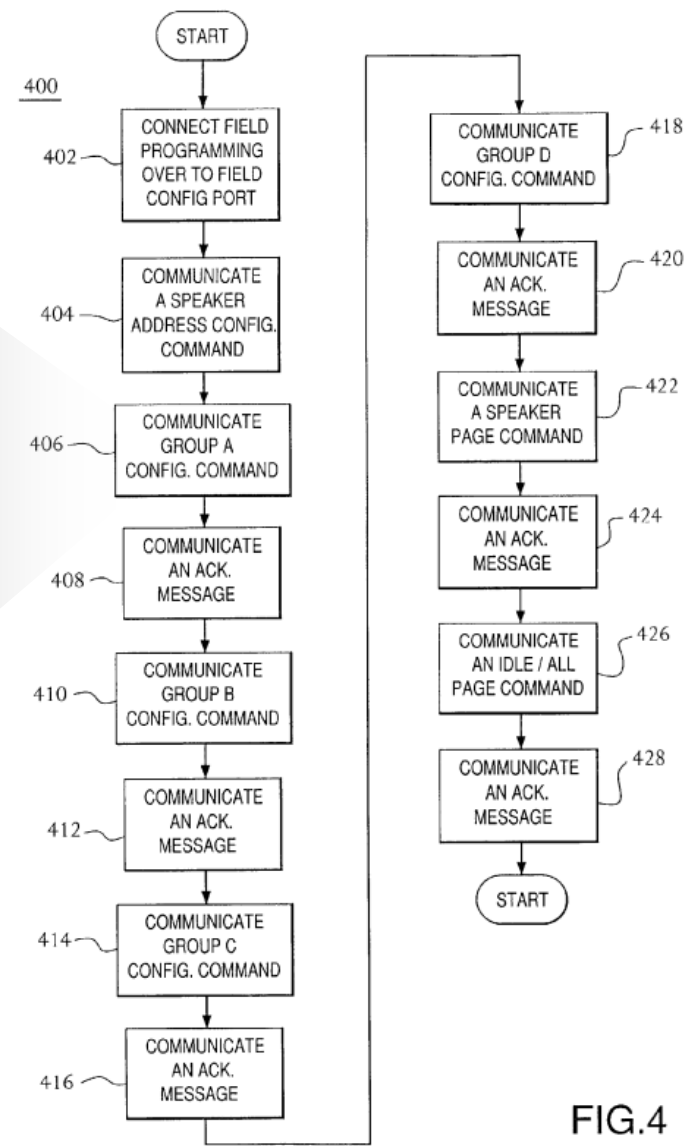

























FIG.4

**Claim 1 of '966 Patent**

<b>1.0</b> A computing device comprising:	
<b>1.1</b> one or more processors;	
<b>1.2</b> a non-transitory computer-readable medium; and	
<b>1.3</b> program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
<b>1.4</b> while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
<b>1.5</b> receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
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<b>1.7</b> receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
<b>1.8</b> based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
<b>1.9</b> displaying a representation of the first zone scene and a representation of the second zone scene; and	
<b>1.10</b> while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
<b>1.11</b> based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	



**Claim 1 of '885 Patent**

[1.0] A first zone player comprising:	
[1.1] a network interface that is configured to communicatively couple the first zone player to at least one data network;	
[1.2] one or more processors;	
[1.3] a non-transitory computer-readable medium; and	
[1.4] program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:	
[1.5] while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:	
[1.6] (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and	
[1.7] (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;	
[1.8] after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;	
[1.9] after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and	
[1.10] based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.	

SONOS



**Robert  
Lambourne**  
'885, '966 Patents  
Inventor

Q. Yeah. But here you were in November of 2003 trying to think about how to design the Sonos 2005 prior art system, and you were listing a number of products here. Do you see that?

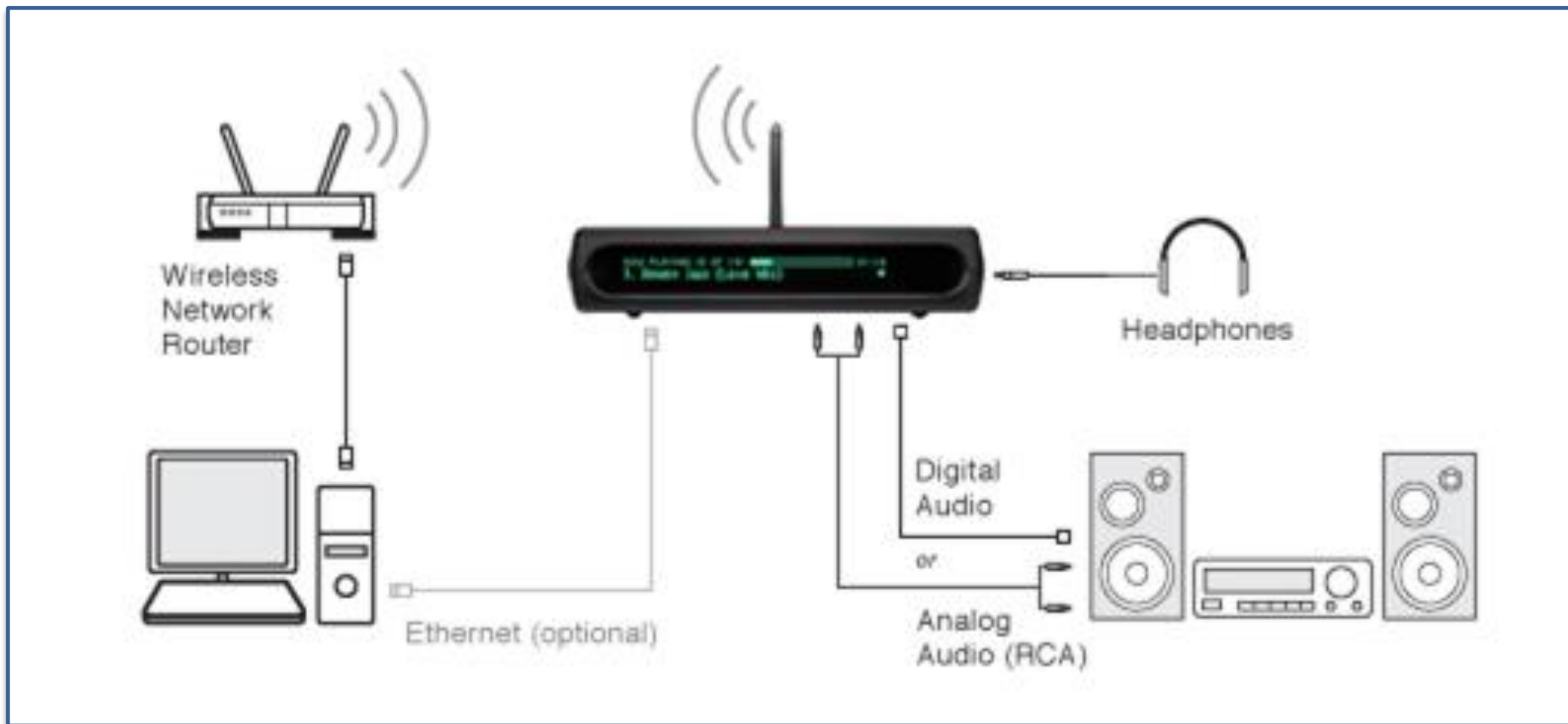
A. Yes.

Q. One of the products you listed was Squeezebox; correct?

A. Yes.

5/9/2023 Trial Tr. (Lambourne) at 556:15-20

# squeezebox™



TX3808 at 61

## SoftSqueeze is a software version of the Squeezebox speaker



# softsqueeze

Softsqueeze is a music player for your PC that works with the [SqueezeCenter software](#). It complements the Boom, Duet, Transporter, Squeezebox and Slimp3 hardware music players developed by [Slim Devices](#).



## Index of /downloads

The Wayback Machine - <https://web.archive.org/web/20041208214606/http://www.slimdevices.com:80/downloads/>

Name	Last modified	Size	Description
------	---------------	------	-------------

<a href="#">Parent Directory</a>	07-Dec-2004 18:14	-	
<a href="#">AudioFeast/</a>	17-Nov-2004 00:14	-	
<a href="#">SLIMP3.pdf</a>	12-Feb-2003 07:04	1.6M	
<a href="#">SLIMP3_Server_v3.1b1/</a>	08-Feb-2003 11:29	-	
<a href="#">SLIMP3_Server_v3.1b2/</a>	15-Feb-2003 08:18	-	
<a href="#">SLIMP3_Server_v3.1b3/</a>	14-Mar-2003 07:09	-	
<a href="#">SLIMP3_Server_v3.1b4/</a>	21-Mar-2003 14:15	-	
<a href="#">SLIMP3_Server_v3.1b5/</a>	01-Apr-2003 23:26	-	
<a href="#">SLIMP3_Server_v4.0/</a>	11-Apr-2003 07:44	-	
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<a href="#">SLIMP3_Server_v4.2.1/</a>	19-Jun-2003 13:43	-	
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<a href="#">SLIMP3_Server_v4.2.3/</a>	09-Aug-2003 12:12	-	
<a href="#">SLIMP3_Server_v4.2.4/</a>	10-Sep-2003 11:25	-	
<a href="#">SLIMP3_Server_v4.2.6/</a>	06-Oct-2003 16:03	-	
<a href="#">SLIMP3_Server_v4.2/</a>	16-Jun-2003 15:29	-	
<a href="#">SLIMP3_Server_v3.0/</a>	05-Jan-2003 11:16	-	
<a href="#">SlimServer_v5.0.0/</a>	15-Apr-2004 16:31	-	
<a href="#">SlimServer_v5.0.1/</a>	15-Apr-2004 16:32	-	
<a href="#">SlimServer_v5.1.1/</a>	15-Apr-2004 16:34	-	
<a href="#">SlimServer_v5.1.3/</a>	17-Apr-2004 21:55	-	
<a href="#">SlimServer_v5.1.4/</a>	19-Apr-2004 14:49	-	
<a href="#">SlimServer_v5.1.5/</a>	21-Apr-2004 19:04	-	
<a href="#">SlimServer_v5.1/</a>	15-Apr-2004 16:32	-	
<a href="#">SlimServer_v5.2.0/</a>	26-Jun-2004 15:26	-	
<a href="#">SlimServer_v5.2.1/</a>	06-Jul-2004 12:02	-	
<a href="#">SlimServer_v5.3.0/</a>	01-Oct-2004 13:29	-	
<a href="#">SlimServer_v5.3.0b1/</a>	03-Aug-2004 20:44	-	
<a href="#">SlimServer_v5.3.1/</a>	01-Oct-2004 22:38	-	

<a href="#">SlimServer_v5.4.0/</a>	17-Nov-2004 00:14	-	
<a href="#">applescript/</a>	30-Jul-2003 15:43	-	
<a href="#">convert.conf</a>	23-Mar-2004 14:47	1k	
<a href="#">crestron-20021111.zip</a>	31-Dec-2002 16:57	277k	
<a href="#">crestron/</a>	22-Aug-2003 07:49	-	
<a href="#">datasheets/</a>	04-Aug-2003 08:24	-	
<a href="#">display_upgrade.pdf</a>	05-Aug-2004 13:13	3.3M	
<a href="#">firmware/</a>	05-Jan-2003 11:16	-	
<a href="#">misc/</a>	22-Aug-2003 07:49	-	
<a href="#">moodlogic/</a>	25-Jul-2003 11:20	-	
<a href="#">nightly/</a>	08-Dec-2004 07:59	-	
<a href="#">plugins/</a>	11-Sep-2004 00:23	-	
<a href="#">pronto/</a>	22-Nov-2004 08:27	-	
<a href="#">squeezebox.pdf</a>	17-Nov-2003 17:26	401k	
<a href="#">thirdparty/</a>	17-Apr-2004 07:01	-	

Apache/1.3.31 Server at www.slimdevices.com Port 80

TX2508



[SlimServer\\_v5.3.1/](#)

01-Oct-2004 22:38

### TRIAL EXHIBIT

Case No. 3:20-cv-06

DATE ENTERED \_\_\_\_\_

BY \_\_\_\_\_

DEPUTY CLE \_\_\_\_\_

**Slim/Player/Client.pm (v5.3.1)**

```

=item
master() - type: client

    if we're synchronized, 'master' points to master client

=item
slaves() - type: clients

    if we're a master, this

=item
syncgroupid() - type: uniqueid

    unique identifier for th

```

**Slim/Buttons/Synchronize.pm (v5.3.1)**

```

'right' => sub {
    my $client = shift;

    my $selectedClient = $client->syncSelections($client->syncSelection);

    my @oldlines = Slim::Display::Display::curLines($client);

    if (Slim::Player::Sync::isSyncedWith($client, $selectedClient) || ($client eq $selectedClient))
    {
        Slim::Player::Sync::
    } else {
        Slim::Player::Sync::
    }
    $client->pushLeft(\@oldlines);
},

```

**Slim/Player/Sync.pm (v5.3.1)**

```

sub saveSyncPrefs {

    my $client = shift;
    my $temp = shift;
    my $clientID = $client->id();
    if (isSynced($client)) {

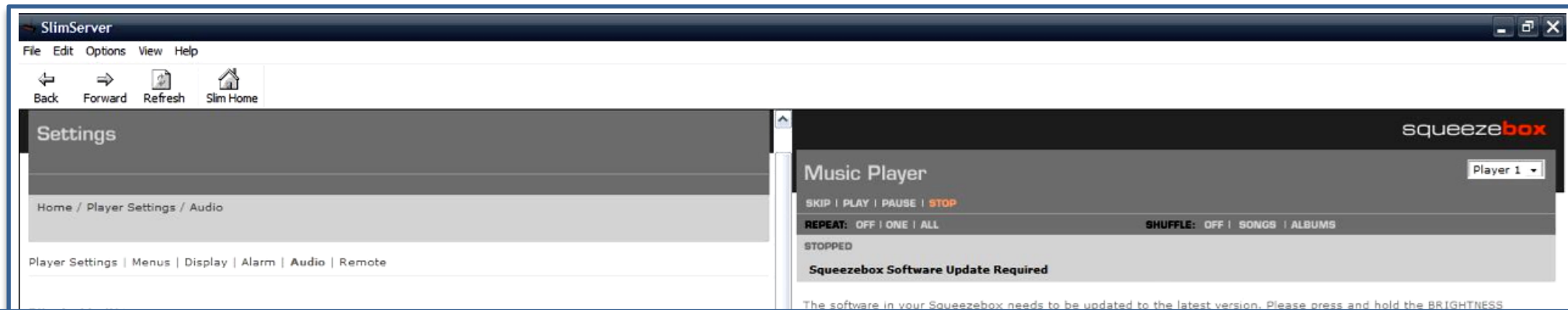
        if (!defined($client->master->syncgroupid)) {
            $client->master->syncgroupid(int(rand 999999999));
        }

        my $masterID = $client->master->syncgroupid;
        # Save Status to Prefs file
        $::d_sync && msg("Saving $clientID as a slave to $masterID\n");
        Slim::Utils::Prefs::clientSet($client, 'syncgroupid', $masterID);
        Slim::Utils::Prefs::clientSet($client->master, 'syncgroupid', $masterID);

    }
    if ($temp) {
        $::d_sync && msg("Idling Sync for $clientID\n");
    } else {
        $client->syncgroupid(undef);
        Slim::Utils::Prefs::clientDelete($client, 'syncgroupid');
        $::d_sync && msg("Clearing Sync master for $clientID\n");
    }
}

```

TX3007



## Synchronize

The player can be synchronized with other players, enabling them to play the same music simultaneously. Choose the players you would like to synchronize with from the list of available synchronization groups. Choose No Synchronization to stop synchronization.

**Synchronize**

The player can be synchronized with other players, enabling them to play the same music simultaneously. Choose the players you would like to synchronize with from the list of available synchronization groups. Choose No Synchronization to stop synchronization.

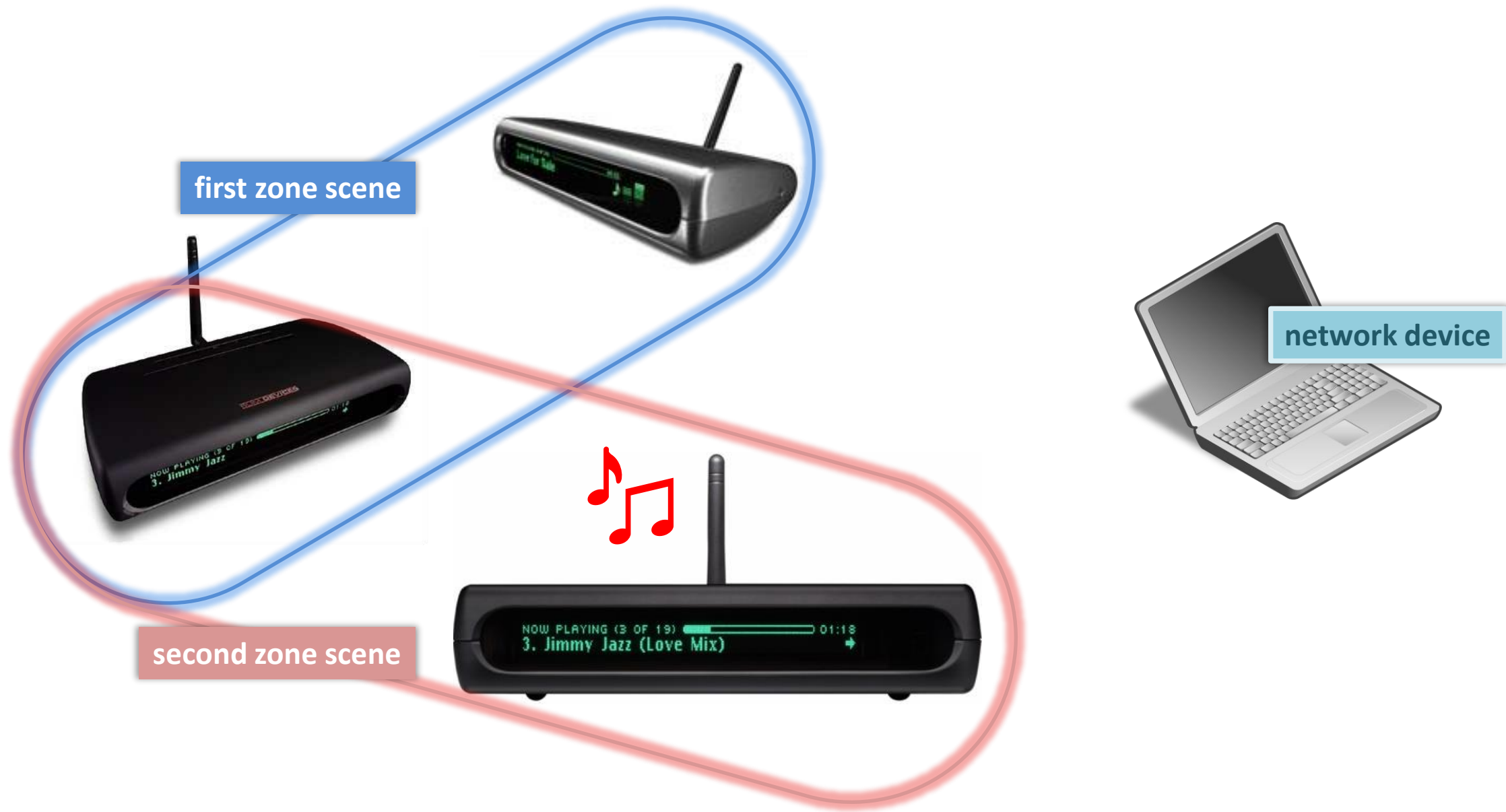
**Synchronize Volume**

You can choose to have the volume levels for the synced players track each other or be independent. Make a selection below and click Change.

**Synchronize Power**

You can choose to have this player turn off on its own, or turn off as a group with all other players in the group. Make a selection below and click Change.





```
[vmuser@slimserver2 ~]$ grep -P 'playername|syncgroup|syncPower|power\b'
/etc/slimserver.conf
19:1e:67:04:72:30-playername = player2
19:1e:67:04:72:30-power = 0
19:1e:67:04:72:30-syncPower = 0
bc:2a:ae:6b:ab:ce-playername = player3
bc:2a:ae:6b:ab:ce-power = 0
bc:2a:ae:6b:ab:ce-syncPower = 0
bc:2a:ae:6b:ab:ce-syncgroupid = 361890235
db:3a:52:e6:70:6b-playername = player1
db:3a:52:e6:70:6b-power = 1
db:3a:52:e6:70:6b-syncPower = 0
db:3a:52:e6:70:6b-syncgroupid = 361890235
```

player1













361890235

```
[vmuser@slimserver1 ~]$ grep -P 'playername|syncgroup|syncPower|power\b'
/etc/slimserver.conf
19:1e:67:04:72:30-playername = player2
19:1e:67:04:72:30-power = 0
19:1e:67:04:72:30-syncPower = 0
19:1e:67:04:72:30-syncgroupid = 675042355
bc:2a:ae:6b:ab:ce-playername = player3
bc:2a:ae:6b:ab:ce-power = 0
bc:2a:ae:6b:ab:ce-syncPower = 0
db:3a:52:e6:70:6b-playername = player1
db:3a:52:e6:70:6b-power = 1
db:3a:52:e6:70:6b-syncPower = 0
db:3a:52:e6:70:6b-syncgroupid = 675042355
```




player1

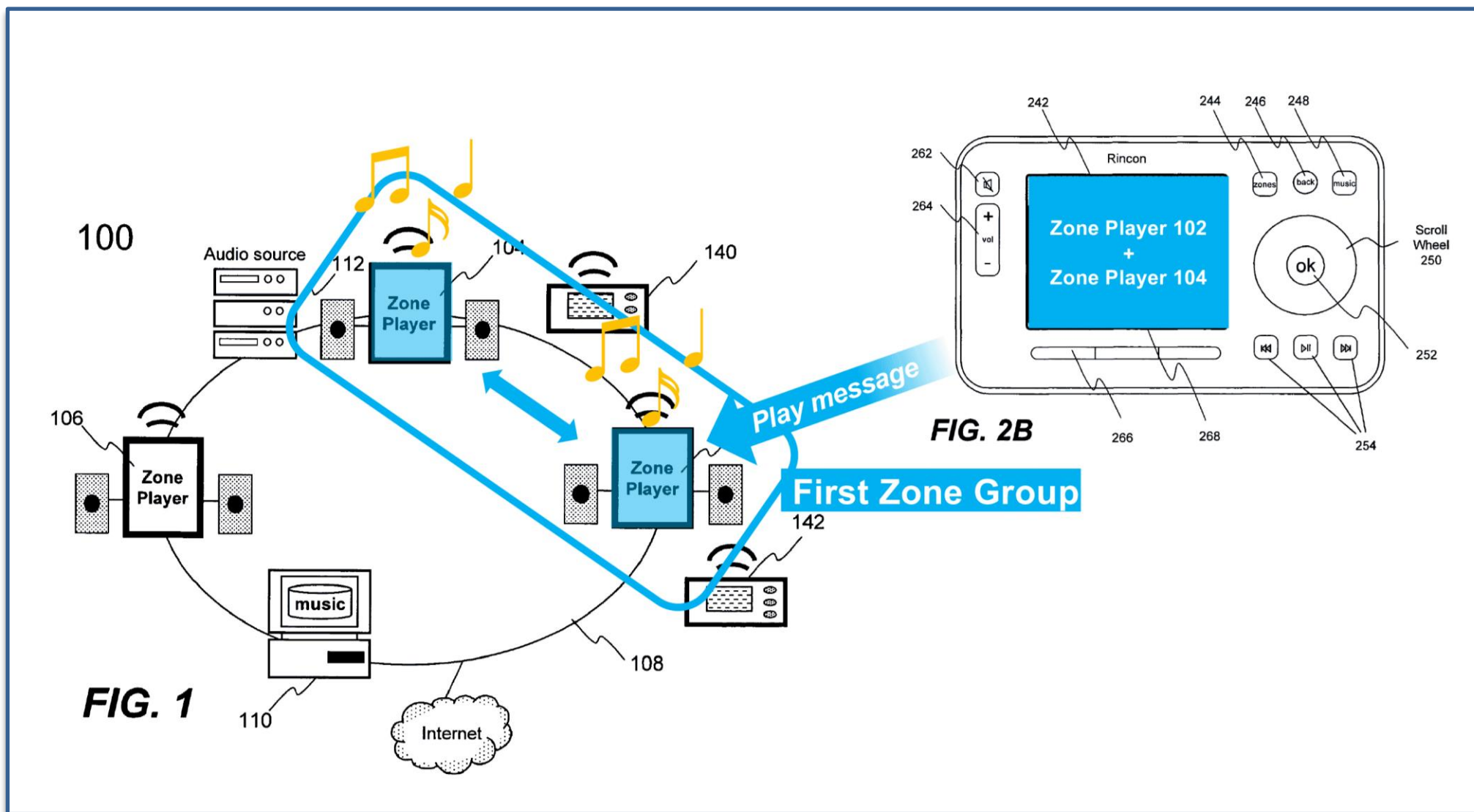
675042355

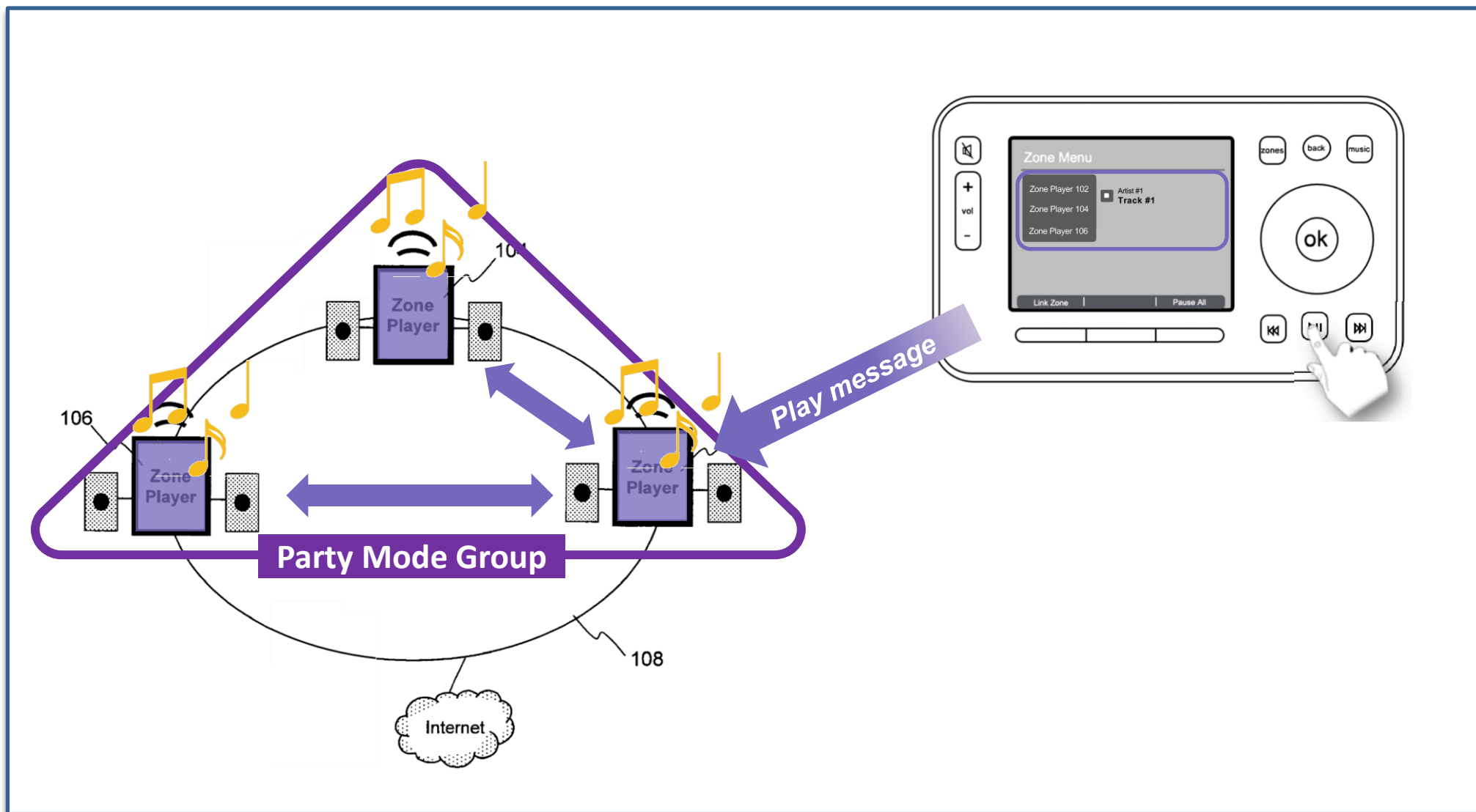
# Claim 1 of '966 Patent

<b>1.0</b> A computing device comprising:	
<b>1.1</b> one or more processors;	
<b>1.2</b> a non-transitory computer-readable medium; and	
<b>1.3</b> program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
<b>1.4</b> while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:	
<b>1.5</b> receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;	
<b>1.6</b> based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;	
<b>1.7</b> receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;	
<b>1.8</b> based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;	
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<b>1.10</b> while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and	
<b>1.11</b> based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.	

## '966 dependent Claims 2-4, 6, 8






2. The computing device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
while the first zone player is configured to coordinate with at least the second zone player to play back media in synchrony with at least the second zone player, receiving a fourth request to invoke the second zone scene; and	
based on the fourth request, causing the first zone player to (a) cease to operate in accordance with the first predefined grouping of zone players such that the first zone player is no longer configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player and (b) begin to operate in accordance with the second predefined grouping of zone players such that the first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player.	
3. The computing device of claim 1, wherein causing storage of the first zone scene comprises causing storage of the first zone scene at a location other than the computing device, and wherein causing storage of the second zone scene comprises causing storage of the second zone scene at the location other than the computing device.	
4. The computing device of claim 3, wherein the location other than the computing device comprises a zone player of the first predefined grouping of zone players.	
6. The computing device of claim 1, wherein the first predefined grouping of zone players does not include the third zone player, and wherein the second predefined grouping of zone players does not include the second zone player.	
8. The computing device of claim 1, wherein receiving the first request comprises receiving a first set of one or more inputs via a user interface of the computing device, wherein receiving the second request comprises receiving a second set of one or more inputs via the user interface, and wherein receiving the third request comprises receiving a third set of one or more inputs via the user interface.	



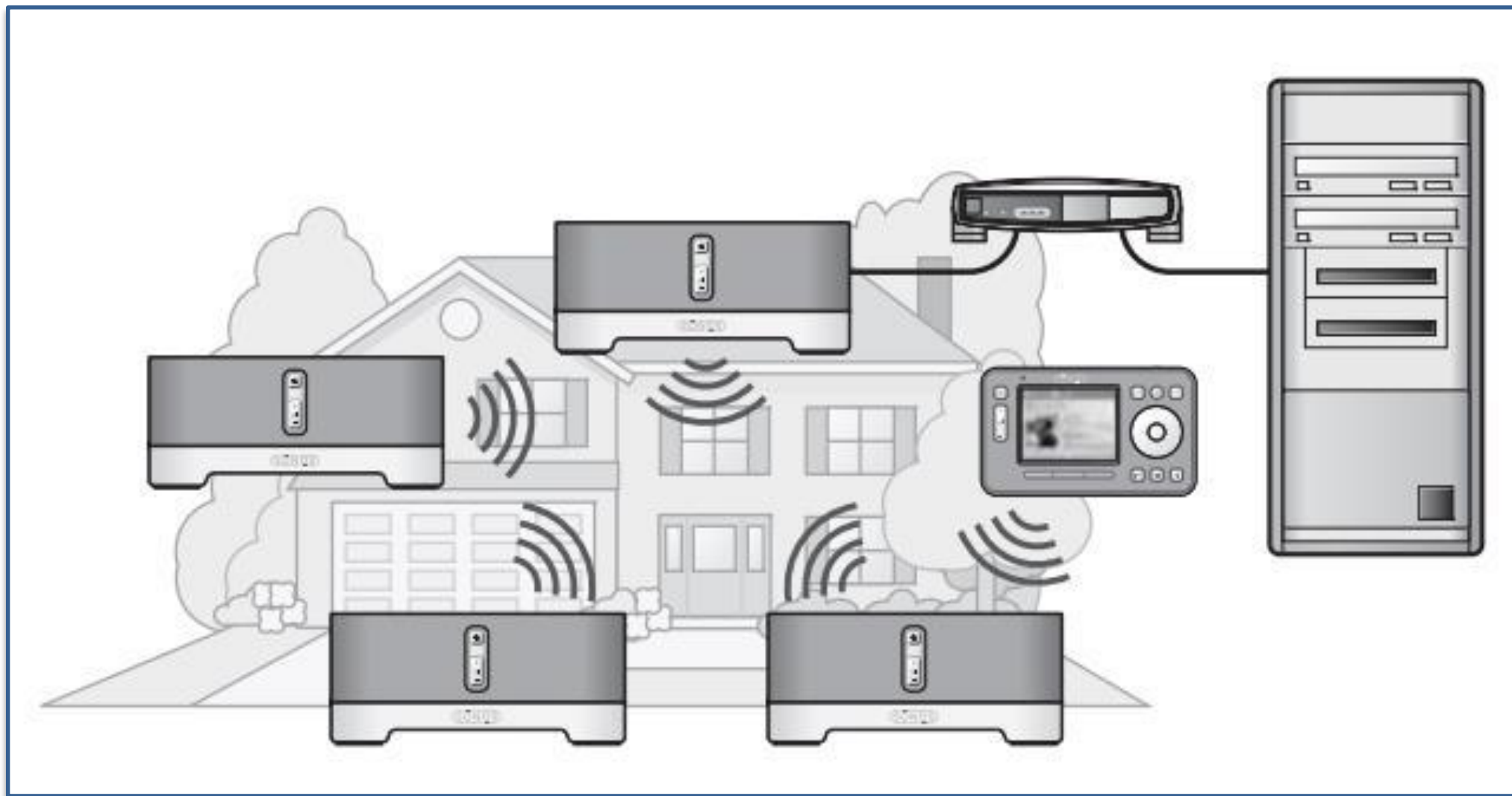




## '966 dependent Claims 2-4, 6, 8







2. The computing device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
while the first zone player is configured to coordinate with at least the second zone player to play back media in synchrony with at least the second zone player, receiving a fourth request to invoke the second zone scene; and	
based on the fourth request, causing the first zone player to (a) cease to operate in accordance with the first predefined grouping of zone players such that the first zone player is no longer configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player and (b) begin to operate in accordance with the second predefined grouping of zone players such that the first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player.	
3. The computing device of claim 1, wherein causing storage of the first zone scene comprises causing storage of the first zone scene at a location other than the computing device, and wherein causing storage of the second zone scene comprises causing storage of the second zone scene at the location other than the computing device.	
4. The computing device of claim 3, wherein the location other than the computing device comprises a zone player of the first predefined grouping of zone players.	
6. The computing device of claim 1, wherein the first predefined grouping of zone players does not include the third zone player, and wherein the second predefined grouping of zone players does not include the second zone player.	
8. The computing device of claim 1, wherein receiving the first request comprises receiving a first set of one or more inputs via a user interface of the computing device, wherein receiving the second request comprises receiving a second set of one or more inputs via the user interface, and wherein receiving the third request comprises receiving a third set of one or more inputs via the user interface.	

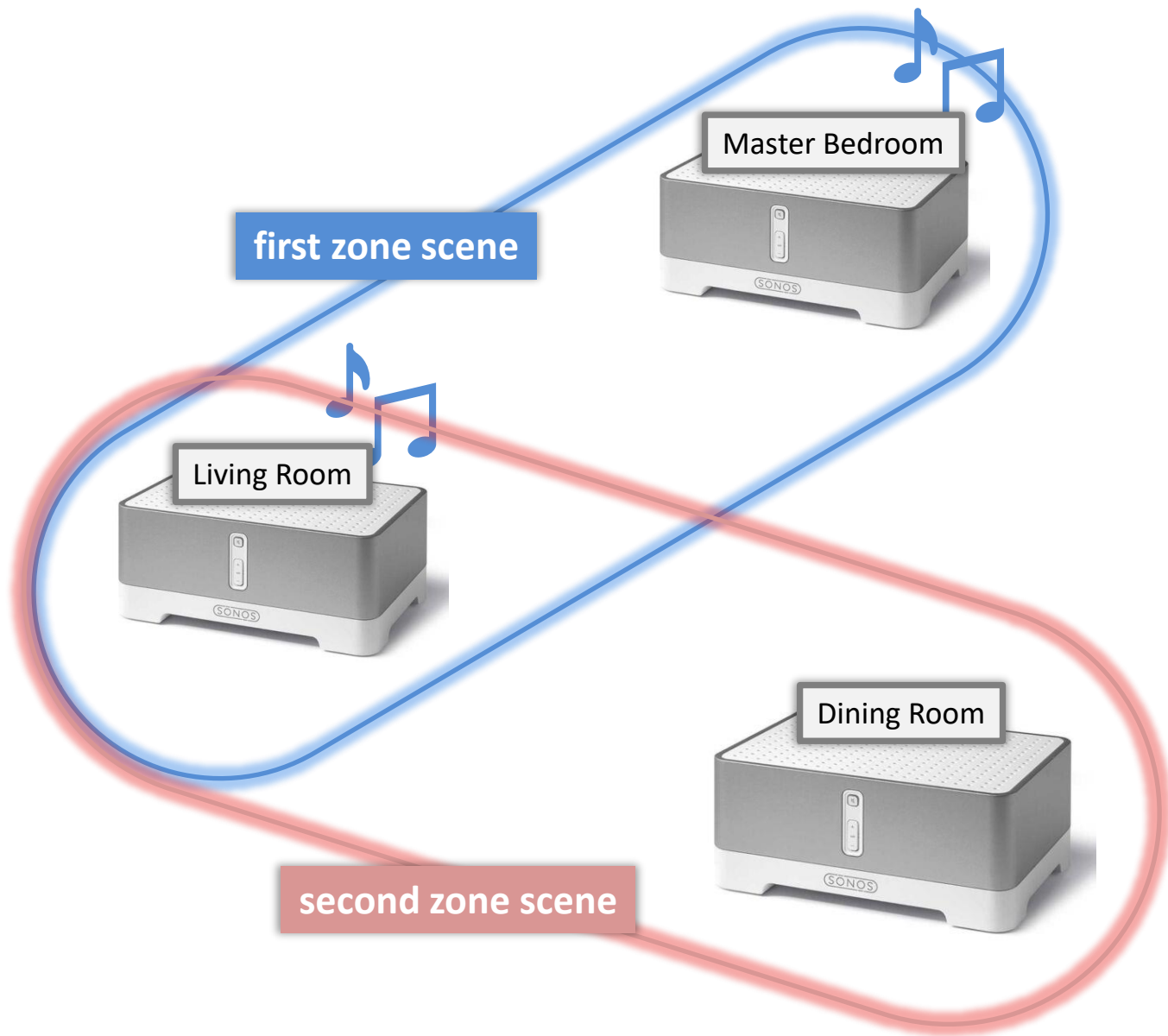











TX0062 at 6

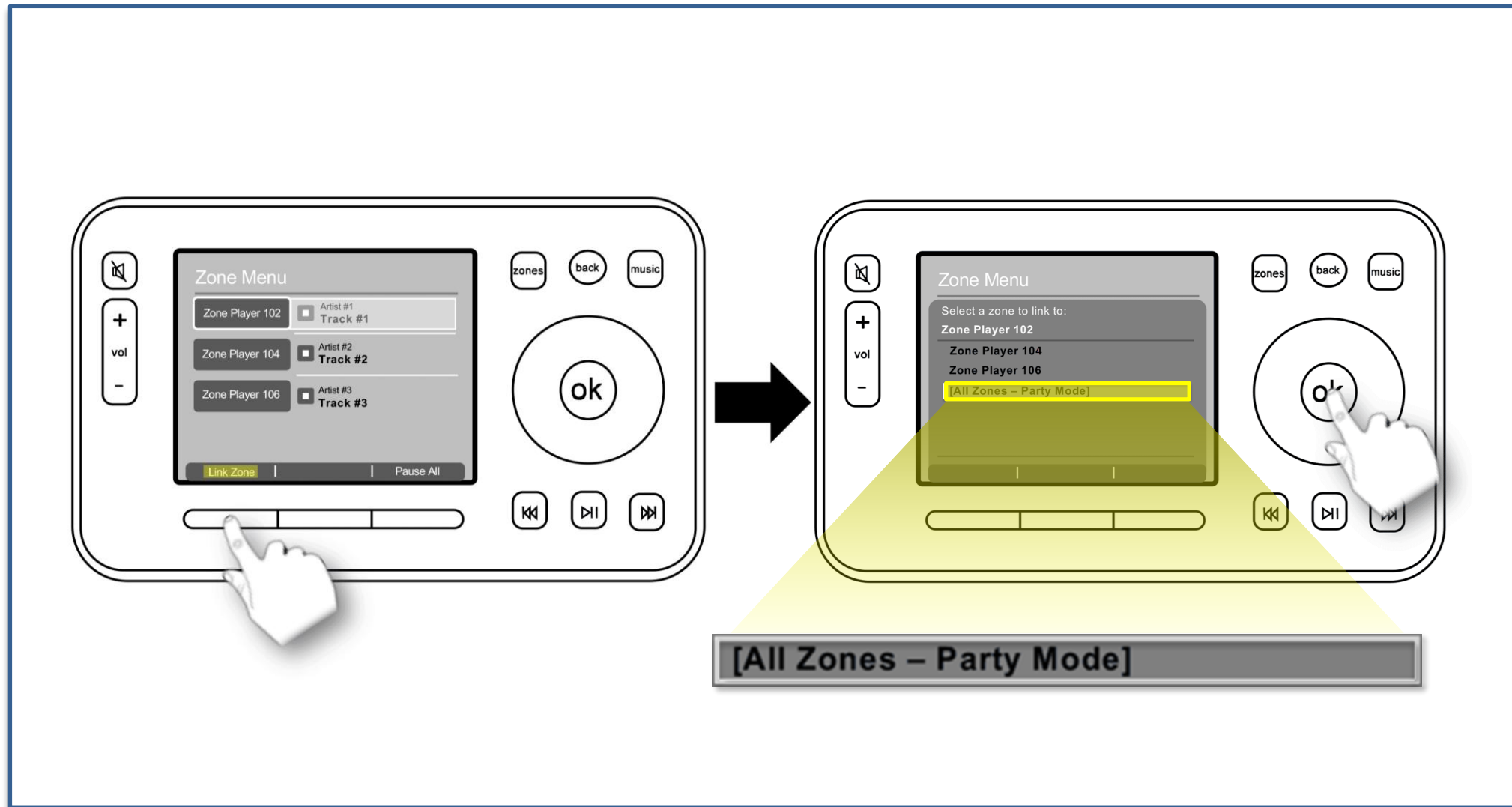
## '966 dependent Claims 2-4, 6, 8

2. The computing device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
while the first zone player is configured to coordinate with at least the second zone player to play back media in synchrony with at least the second zone player, receiving a fourth request to invoke the second zone scene; and	
based on the fourth request, causing the first zone player to (a) cease to operate in accordance with the first predefined grouping of zone players such that the first zone player is no longer configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player and (b) begin to operate in accordance with the second predefined grouping of zone players such that the first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player.	
3. The computing device of claim 1, wherein causing storage of the first zone scene comprises causing storage of the first zone scene at a location other than the computing device, and wherein causing storage of the second zone scene comprises causing storage of the second zone scene at the location other than the computing device.	
4. The computing device of claim 3, wherein the location other than the computing device comprises a zone player of the first predefined grouping of zone players.	
6. The computing device of claim 1, wherein the first predefined grouping of zone players does not include the third zone player, and wherein the second predefined grouping of zone players does not include the second zone player.	
8. The computing device of claim 1, wherein receiving the first request comprises receiving a first set of one or more inputs via a user interface of the computing device, wherein receiving the second request comprises receiving a second set of one or more inputs via the user interface, and wherein receiving the third request comprises receiving a third set of one or more inputs via the user interface.	



## '966 dependent Claims 2-4, 6, 8

2. The computing device of claim 1, further comprising program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:	
while the first zone player is configured to coordinate with at least the second zone player to play back media in synchrony with at least the second zone player, receiving a fourth request to invoke the second zone scene; and	
based on the fourth request, causing the first zone player to (a) cease to operate in accordance with the first predefined grouping of zone players such that the first zone player is no longer configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player and (b) begin to operate in accordance with the second predefined grouping of zone players such that the first zone player is configured to coordinate with at least the third zone player to output media in synchrony with output of media by at least the third zone player.	
3. The computing device of claim 1, wherein causing storage of the first zone scene comprises causing storage of the first zone scene at a location other than the computing device, and wherein causing storage of the second zone scene comprises causing storage of the second zone scene at the location other than the computing device.	
4. The computing device of claim 3, wherein the location other than the computing device comprises a zone player of the first predefined grouping of zone players.	
6. The computing device of claim 1, wherein the first predefined grouping of zone players does not include the third zone player, and wherein the second predefined grouping of zone players does not include the second zone player.	
8. The computing device of claim 1, wherein receiving the first request comprises receiving a first set of one or more inputs via a user interface of the computing device, wherein receiving the second request comprises receiving a second set of one or more inputs via the user interface, and wherein receiving the third request comprises receiving a third set of one or more inputs via the user interface.	





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# Migrating your Sonos system to the new S2 app can be messy. Here's what we know



By [Jacob Krol](#)

Published 12:37 PM EDT, Mon June 8, 2020

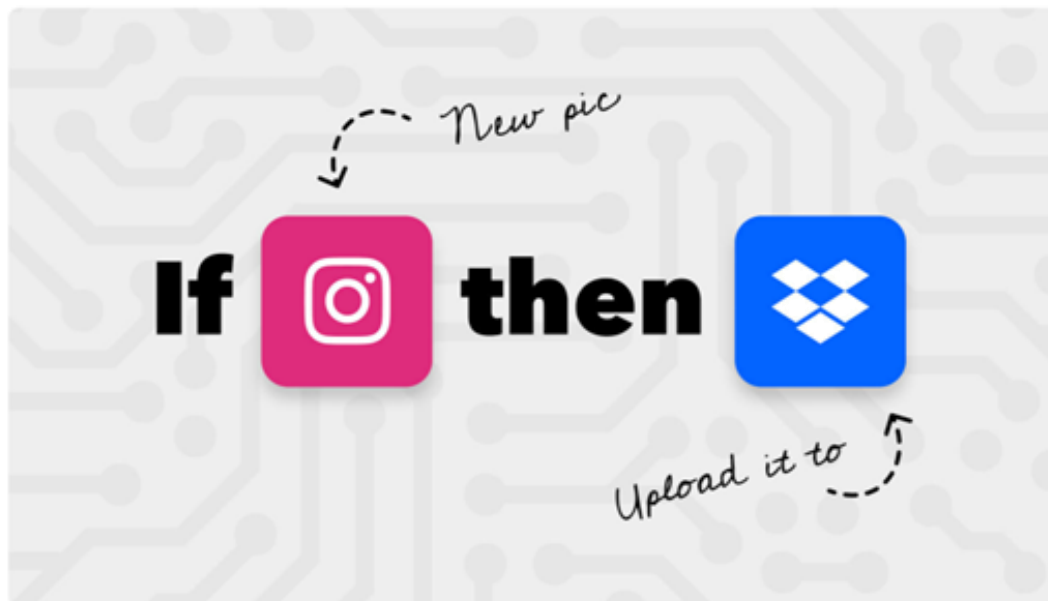


By far the best feature of Sonos S2 is the ability to save a group of speakers as a preset. No longer will you need to constantly select which speaker you want to listen to each time. Save it as a group, and you're better off. It's really great, and Sonos notes this is the first of a series of new user interface updates that will sit alongside audio technology updates. For the latter, Sonos S2 is a key part of Dolby Atmos on the Arc.

TX6780 at 1 and 3

## What can IFTTT do?

To put it simply, IFTTT can do anything!



Some of our most popular smart home Applets include using the weather to determine the temperature in your home, turning on your security system when you leave your home, and using your voice to turn on a device. The most common social media Applets help cross-post content automatically and streamline your online strategy.

TX0115 at 1-2



## PATENT PURCHASE AGREEMENT

This PATENT PURCHASE AGREEMENT (the "**Agreement**") is entered into by and between Google Inc., a Delaware corporation with its principal place of business at 1600 Amphitheatre Parkway, Mountain View, CA 94043 ("**Google**") and Outland Research LLC, a California limited liability company, with its business mailing address of P.O. Box 3537, Pismo Beach, CA 93448 ("**Seller**") and is effective as of July 29, 2011 (the "**Effective Date**"). The parties hereby agree as follows:

## 1. BACKGROUND

## PATENT PURCHASE AGREEMENT

This PATENT PURCHASE AGREEMENT (the "**Agreement**") is entered into by and between Google Inc., a Delaware corporation with its principal place of business at 1600 Amphitheatre Parkway, Mountain View, CA 94043 ("**Google**") and Outland Research LLC, a California limited liability company, with its business mailing address of P.O. Box 3537, Pismo Beach, CA 93448 ("**Seller**") and is effective as of July 29, 2011 (the "**Effective Date**"). The parties hereby agree as follows:

additional documents Seller may be required to execute and deliver under Section 3.3.

"Listed Patents" means the provisional patent applications, patent applications, and patents listed on Exhibit A.

"Patents" means, all (a) Listed Patents; (b) patents or patent applications (i) to which any of the Listed Patents claims priority, (ii) for which any of the Listed Patents forms a basis for priority, (iii) that were co-owned applications that incorporate by reference, or are incorporated by reference into, the Listed Patents,

PPA v20101205

TX6016

Agreement with Outland Research LLC

(12) **United States Patent**  
**Rosenberg**

(10) **Patent No.:** **US 7,603,414 B2**  
(45) **Date of Patent:** **Oct. 13, 2009**

(54) **SYSTEM, METHOD AND COMPUTER PROGRAM PRODUCT FOR COLLABORATIVE BACKGROUND MUSIC AMONG PORTABLE COMMUNICATION DEVICES**

(56) **References Cited**  
**U.S. PATENT DOCUMENTS**  
4,054,749 A 10/1977 Suzuki  
5,164,530 A 11/1992 Iwase  
5,614,687 A 3/1997 Yamada et al.

**7,603,414**

(73) Assignee: **Outland Research, LLC**, Pismo Beach, CA (US)

FOREIGN PATENT DOCUMENTS

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 497 days.

WO WO200608645

OTHER

(21) Appl. No.: **11/610,615**

U.S.P.T.O., Office Action

(22) Filed: **Dec. 14, 2006**

Primary Examiner—J

(65) **Prior Publication Data**  
US 2007/0106726 A1 May 10, 2007

(74) Attorney, Agent  
Sinsheimer Juhnke Le

(57)

**Related U.S. Application Data**

(63) Continuation of application No. 11/267,079, filed on Nov. 3, 2005, now Pat. No. 7,542,816, and a continuation of application No. 11/533,037, filed on Sep. 19, 2006, and a continuation of application No. 11/223,368, filed on Sep. 9, 2005.

(60) Provisional application No. 60/793,214, filed on Apr. 19, 2006.

(51) **Int. Cl.**  
**G06F 15/16** (2006.01)

(52) **U.S. Cl.** ..... **709/204; 709/203; 709/208; 709/205; 709/224; 709/223; 725/88; 725/100; 725/102; 705/2; 705/1; 705/4; 705/5; 705/7**

(58) **Field of Classification Search** ..... **709/203–205; 709/208, 224, 223, 219, 217**

See application file for complete search history.

24 Claims



(57)

## ABSTRACT

A system, method and computer program product for enabling a plurality of users engaged in real-time voice communications over a wireless communications link to collaboratively select one or more musical media files and to jointly listen to the collaboratively selected musical media in approximate synchronicity as a mutually perceivable background musical stream. The background musical stream is

**TX2675**

Chris Bakewell, ASA, CLP

Reasonable Royalties and Licensing

SONOS



Google

'966  
Nov 2019  
- Nov 15, 2022



'885  
Nov 2020 -  
Sept 30, 2022



# SONOS



# Google

'966  
Nov 2019  
- Nov 15, 2022



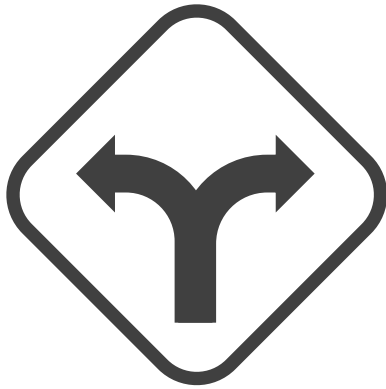
'885  
Nov 2020 -  
Sept 30, 2022

'885 and '966  
set to expire  
**September 2027**

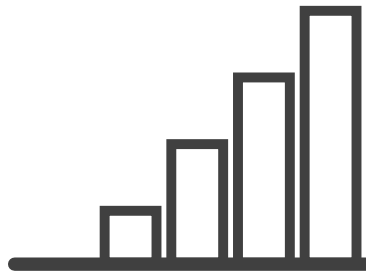
Google released  
Chromecast  
**July 2013**

Sonos begins practicing  
'885 and '966  
**June 2020**





**Cost**



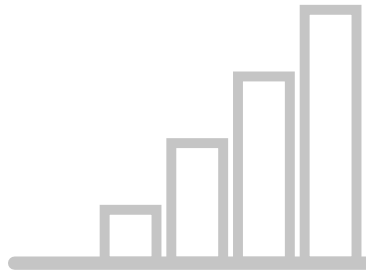
**Income**



**Market**



**Cost**



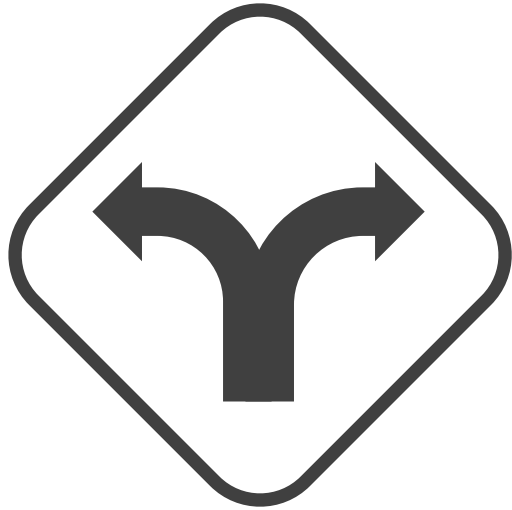
**Income**



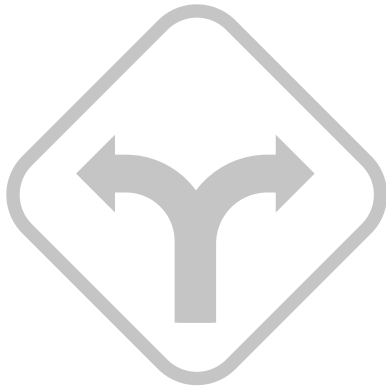
**Market**



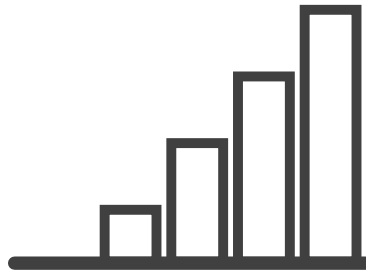
# Non-Infringing Alternatives (“NIAs”)



- Patents-in-suit have economic boundaries
- Commercially acceptable
- Real-world evidence
- Mr. Malackowski made no allowance for this



**Cost**



**Income**



**Market**

“The extent to which the infringer has made use of the invention, and any evidence probative of the value of that use.”

**U.S. devices in a group (daily)**

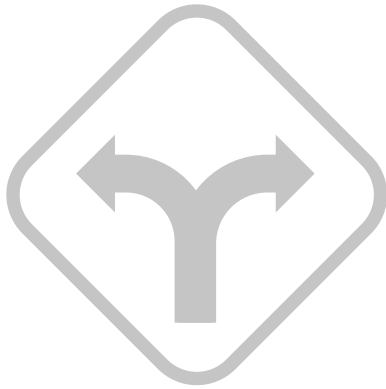
**0.554%**

**U.S. devices in a group (monthly)**

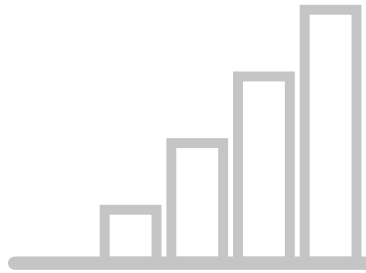
**2.752%**

**U.S. devices that joined a static group (daily)**

**0.022%**



**Cost**

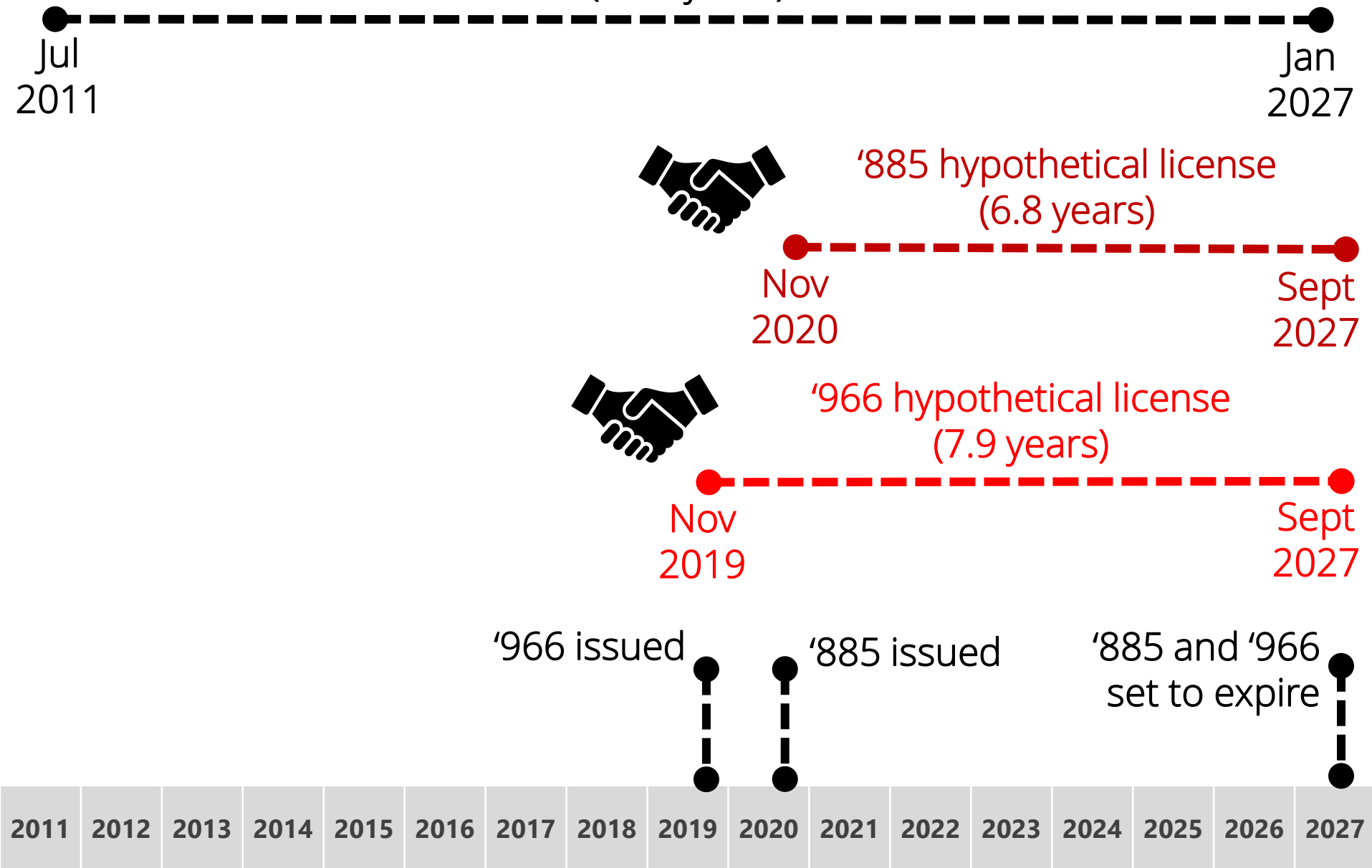


**Income**



**Market**

# Outland - Google Agreement (15.5 years)



# Royalty Reports

## Lenbrook (Bluesound)

Time Period	Worldwide Royalty Payments	U.S. Royalty Payments
Jan 2019- Sep 2020	\$782,379	\$359,210
Oct 2020- Dec 2020	277,430	127,116
Jan 2021- Mar 2021	147,304	68,100
Apr 2021- Jun 2021	173,565	80,706
Jul 2021- Sep 2021	295,897	148,804
<b>Total</b>	<b>\$1,676,575</b>	<b>\$783,936</b>

## Legrand (Pass & Seymour)

Time Period	Worldwide Royalty Payments	U.S. Royalty Payments
Jan 2019- Sep 2020	\$206,317	\$184,425
Oct 2020- Dec 2020	18,637	15,336
Jan 2021- Mar 2021	17,190	12,924
Apr 2021- Jun 2021	16,885	12,576
Jul 2021- Sep 2021	18,769	13,740
<b>Total</b>	<b>\$277,798</b>	<b>\$239,001</b>



# Georgia Pacific Factors

Factors 1 and 2: Comparable agreements

Factor 3: Nature and scope of license

Factor 5: Competition

Factors 9 and 10: Prior art and alternative technologies

Factor 11: Usage

Factor 13: Apportionment

# Welcome to Google Nest. Build your helpful home.



Speakers



Displays



Streaming



Wi-Fi



Smoke & CO alarm



Door lock



Cameras



Doorbells



Thermostats



Accessories



CHROMECAST

\$50



CHROMECAST  
AUDIO

\$35



CHROMECAST  
ULTRA

\$70



CHROMECAST  
WITH GOOGLE TV

\$50



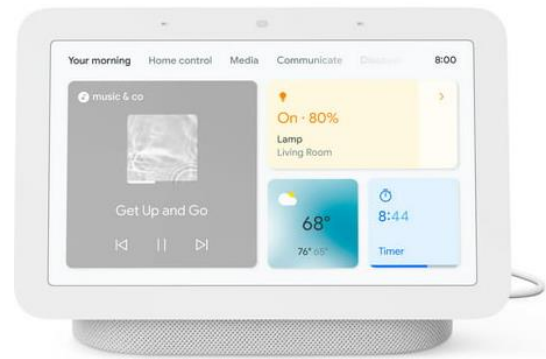
NEST AUDIO

\$100



NEST MINI

\$50



NEST HUB

\$80



NEST HUB MAX

\$230



NEST WIFI POINT

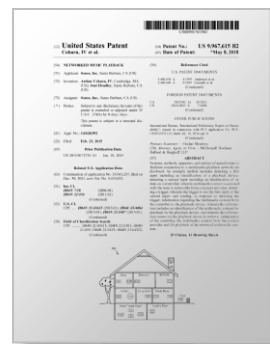
\$150

# Google's Closing Statement



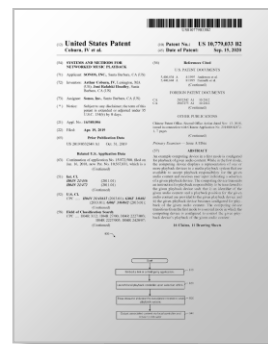
# Four Out of Six Patents Invalidated Or Withdrawn

'615



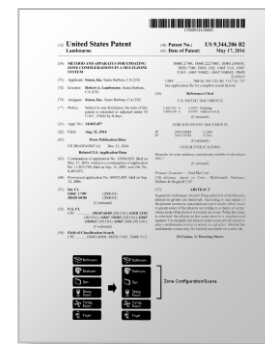
Invalid as  
obvious

'033



Invalid as  
obvious

'206



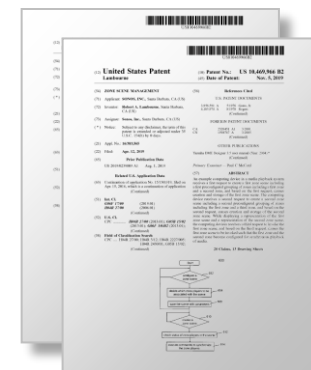
Withdrawn

'460



Withdrawn

'966/'855



## IN THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS WACO DIVISION

SONOS, INC.,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

§ Case No.

§ COMPLAINT FOR PATENT

§ INFRINGEMENT

§ Jury Trial Demanded

§

§

§

§

### COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Sonos, Inc. ("Sonos" or "Plaintiff") hereby asserts claims for infringement of United States Patent Nos. 9,967,615; 10,779,033; 9,344,206; 10,469,966; and 9,219,460 (the "patents-in-suit"; attached hereto as Exhibits 1-5 respectively) against Defendant Google LLC ("Google" or "Defendant"), and alleges as follows:

#### INTRODUCTION

1. Sonos is an American success story. It was founded in 2002 in Santa Barbara, California by a handful of engineers and entrepreneurs with a vision to invent the world's first wireless, whole-home audio system. At the time, popular audio systems were dependent on a centralized receiver hard-wired to each individual passive speaker throughout a home. Further, most homes with Internet access had dial-up connections, the iPhone was still five years away, and there were no streaming music services. The technological barriers confronting Sonos were enormous.

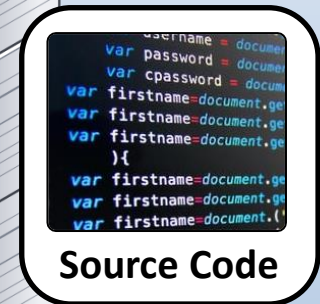
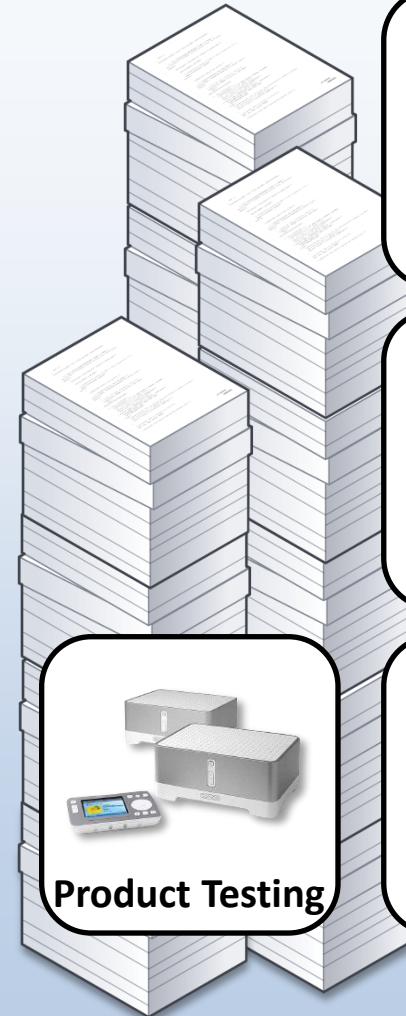
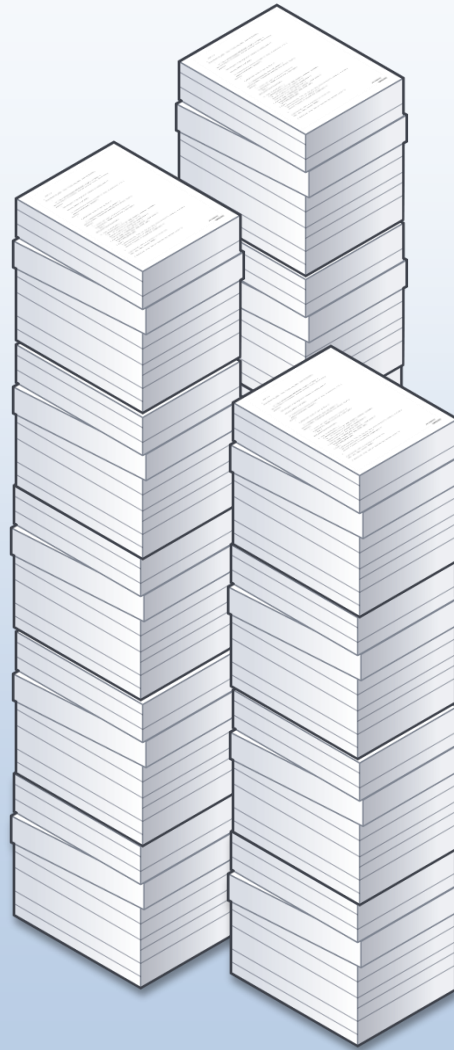
2. To deliver on its vision, the Sonos team completely reimagined the in-home music system as a decentralized network of smart playback devices, and it developed a platform that

CONFIDENTIAL

TX6136, Page 1 of 87

GOOG-SONOSNDCA-00056148

# Evidence Presented To Jury



# The Patents Are Invalid

# Party Mode In Sonos 2005 System Was a "Zone Scene"

## Jury Instruction #20:

Sonos 2005 system is prior art because it was shipped to customers as early as 2005

**SONOS**



**Robert**

**Lambourne**

**'885, '966 Patents  
Inventor**

Q. The next sentence reads: "Party Mode that currently ships with the product is one example of a zone scene." That is what you wrote; correct?

A. That's what I wrote, yes.

\* \* \*

Q. Sure. When you say, "Party Mode that currently ships with the product," you were referring to the Party Mode that existed in the Sonos prior art 2005 system; correct?

A. I was referring to Party Mode of the original product, yes.

Transcript at 520:21-521:10

# Lambourne 2005-2006 Business Record: 2005 Party Mode Is Zone Scene

## Sonos UI Specification Clock and Alarm Clock

Version 003

Rob Lambourne

Created: 10/26/05

Modified: 1/19/06

© 2004-2005 Sonos, Inc.



## 4.1 Zone Scenes

Zone Scenes are a mechanism whereby the user can setup and invoke Zone Grouping using a single action. In the current design, Zone groups are created by linking rooms one-by-one.

'Party Mode' that currently ships with the product is one example of a Zone Scene.

TX6544

# Party Mode In Sonos 2005 System Was a “Zone Scene”

## Jury Instruction #20:

Sonos 2005 system is prior art because it was shipped to customers as early as 2005

**SONOS**



**Robert  
Lambourne**

'885, '966 Patents  
Inventor

Q. If you can answer my question, Mr. Lambourne. Between your recollection sitting here today trying to remember what happened 17 years ago versus a business record that you created, last modified January 19th, 2006, in your opinion which is a better and more reliable source of what actually happened in the January timeframe of 2006?

A. In the document -- the document would be more reliable.

Transcript at 627:6-12



# Examiner Never Considered Actual Conception Documents

## Provisional Application: Appendix A

### Sonos UI Specification: Zone Scenes

#### 1 Introduction

The Zone Scene feature allows the user to arrange the zones into groups using one single command. However, the Zone Scene feature is much more flexible and powerful.

### Zone Scene UI Spec



TX6545

### Sonos UI Specification: Zone Scenes

#### 1 Introduction

The Zone Scene feature allows the user to arrange the zones into groups using one single command. This is similar to the current Party Mode setting that is available. However, the Zone Scene feature is much more flexible and powerful.

TX2651

TX2651 Page 29 of 95

This is similar to the current Party Mode setting that is available.



# Examiner Never Considered Actual Conception Documents

## Provisional Application: Appendix B

### Table of Contents

<b>6</b>	<b>SPECIAL CASES.....</b>	<b>37</b>
6.1	LOST ZONEPLAYERS AND HIDDEN ZONEPLAYERS - HHCR.....	37
6.2	LOST ZONEPLAYERS AND HIDDEN ZONEPLAYERS - DCRS .....	39
6.3	NO DATE OR TIME - HHCR.....	40
6.4	NO DATE OR TIME - DCRS.....	43

### Alarm Clock UI Spec



TX6544

### Sonos UI Specification: Alarm Clock

#### 4 Additional ideas

##### 4.1 Zone Scenes

‘Party Mode’ that currently ships with the product is one example of a Zone Scene.

‘Party Mode’ that currently ships with the product is one example of a Zone Scene.

TX2651



# Only Thing Missing From Sonos 2005 System Was Another Zone Scene

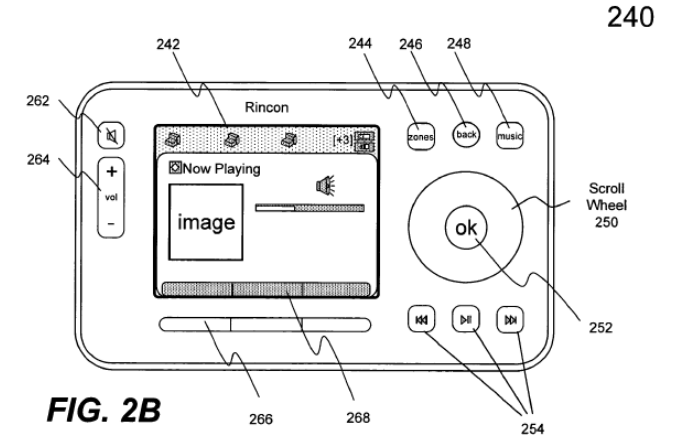


*Sonos 2005 System*



**Save 2nd Group**

*Alleged Invention*



**FIG. 2B**

# Prior Art Forum Posts Disclosed Saving Another Zone Scene For Later

## Jury Instruction #20:

Sonos forum posts that expressly predate December 21, 2005 are prior art.

### Virtual Zones and Zone Grouping

17 years ago · 190 replies · 45377 views

27 February 2005

27 February 2005

theboyg



theboyg Avid Contributor I · 22 replies

This "link/unlink" business is really cumbersome - and not a joy to use which goes against the ease of use of the rest of the system.

Why can't I have a virtual zone - ie a zone called "Downstairs" - and I can group all my downstairs zones into this. Then I dont have to keep manually linking/unlinking multiple zones everytime.

PLEASE !

TX2424

# Prior Art Forum Posts Disclosed Overlapping Zone Scenes

## Jury Instruction #20:

Sonos forum posts that expressly predate December 21, 2005 are prior art.

22 September 2005

JeffT

### Macro / presets

17 years ago • 61 replies • 15140 views

22 September 2005



JeffT Trending Lyricist I • 20 replies

Just got the intro bundle, and I am impressed. I did a search and did not find this suggested, but I would save Zone links as favorites. With only 2 ZPs it is not a problem yet, but when I add more it maybe. I would like to setup say Morning mode for the units I want in the morning and a preset volume between the units. Another example I would have 2 party modes, Summer and Winter. The Summer mode would include the deck speakers and the Winter mode would not. Also it would be nice to have playlists or radio station associated with each mode. So when I get up I press Morning the DI Chill radio station plays.

TX3928 at 1

# Prior Art Forum Posts Overlapping Zone Scenes That Can Be Saved For Later

## Jury Instruction #20:

Sonos forum posts that expressly predate December 21, 2005 are prior art.

**SONOS**



**Robert**

**Lambourne**

'885, '966 Patents  
Inventor

Q. What Jeff T, the user, was describing in a publicly available Sonos forum posting dated September 22nd, 2005, is having multiple zone scenes that are saved for later; correct?

A. Yes.

\* \* \*

Q. And those zone scenes could be overlapping in that they would share a speaker or a ZonePlayer; correct?

A. Yes, and in the summer and winter mode he is describing, yes.

Transcript at 539:17-24

# Prior Art Forum Posts Disclosed Same Solution as Mr. Lambourne

## Jury Instruction #20:

Sonos forum posts that expressly predate December 21, 2005 are prior art.

**SONOS**



**Robert  
Lambourne**

'885, '966 Patents  
Inventor

Q. They were also suggesting macros, sir. Macros is one of the solutions that you had in mind for carrying out your zone scenes on a computer; correct?

A. Yes.

Transcript at 542:9-12



# Prior Art Forum Posts Disclosed Claimed Solution Using Macros

## Jury Instruction #20:

Sonos forum posts that expressly predate December 21, 2005 are prior art.

floras\_dad

27 September 2005



floras\_dad Lyricist III · 20 replies

17 years ago

Great idea. A macro-like scripter would enable you to set groups of zones, associate pl 27 September 2005  
volumes, etc. You could do these as dynamic "presets" based on the Party Mode--which the spouse  
would love--like Entertaining, Romantic Dinner, Ambiance, etc.

This is a great like-to-have.



# Prior Art Forum Posts Disclosed Claimed Solution Using Macros

## Jury Instruction #20:

Sonos forum posts that expressly predate December 21, 2005 are prior art.

**SONOS**



**Robert**

**Lambourne**

'85, '96 Patents  
Inventor

- Q. So Mr. Greenwood, in this prior public posting about the Sonos 2005 system, was describing the same type of problem that you were trying to solve with zone scenes and suggesting macros, which is a similar solution to what you had in mind for that functionality; correct?
- A. In broad terms, yes. As an outcome, yes.

Transcript at 541:2-7

# Jury Instructions on Obviousness

## Jury Instruction #21:

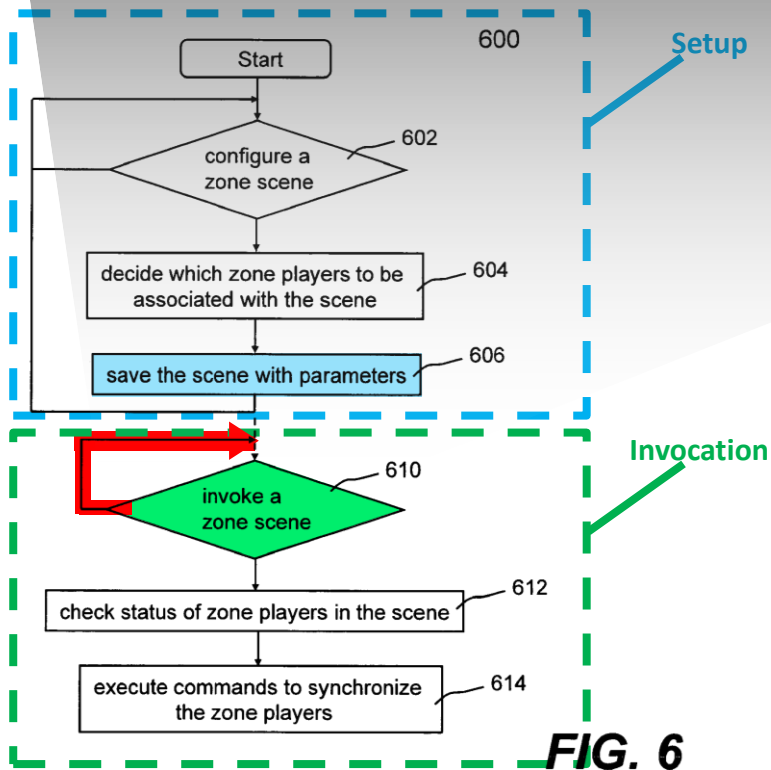
A patent claim is invalid if the claimed invention would have been obvious to a person of ordinary skill in the art at the time the claimed invention was made. In other words, even if the claimed invention was new in the sense that it had never been described before in the prior art, it might nevertheless be true (or not true) that the claimed invention would have been obvious to a person having ordinary skill in the art with knowledge of all the prior art.

## Jury Instruction #19:

On the other hand, cursory detail may indicate that the inventor expected those of ordinary skill in the art would already know enough to practice that point with only minimal disclosure.

# Sonos's Patents Provide Very Thin Disclosure of Previously Saving Zone Scenes "While Operating In Standalone Mode"

of the ten players to be associated with the scene. At 606, the scene is saved. The scene may be saved in any one of the



**FIG. 6**

## Macro / presets

17 years ago • 61 replies • 15140 views

22 September 2005



JeffT Trending Lyricist I • 20 replies

Just got the intro bundle, and I am impressed. I did a search and did not find this suggested, but I would save Zone links as favorites. With only 2 ZPs it is

'885 Patent at Fig. 6, 10:42-44

TX3928 at 1

# Jury Verdict Form Question On Invalidity of '885 Claim

## Jury Verdict Form #1:

### 1. INVALIDITY VS. VALIDITY.

Has Google proven, by clear and convincing evidence, that claim 1 of the '885 patent is invalid?

Yes \_\_\_\_\_ No \_\_\_\_\_

If you answered "Yes" to Question 1, the asserted claim of the '885 patent is invalid, and you should skip to Question 3. If you answered "No," the asserted claim of the '885 patent is valid, and you should proceed to Question 2.

Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 223 of 283

# Jury Verdict Form Question On Invalidity of '966 Claims

## Jury Verdict Form #3:

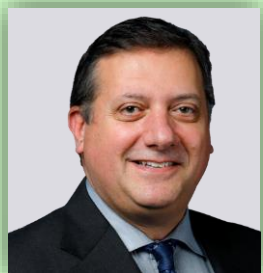
### 3. INVALIDITY VS. VALIDITY.

Has Google proven, by clear and convincing evidence, that any of the following asserted claims of the '966 patent are invalid?

- |       |         |          |         |
|-------|---------|----------|---------|
| (i)   | Claim 1 | Yes ____ | No ____ |
| (ii)  | Claim 2 | Yes ____ | No ____ |
| (iii) | Claim 4 | Yes ____ | No ____ |
| (iv)  | Claim 6 | Yes ____ | No ____ |
| (v)   | Claim 8 | Yes ____ | No ____ |

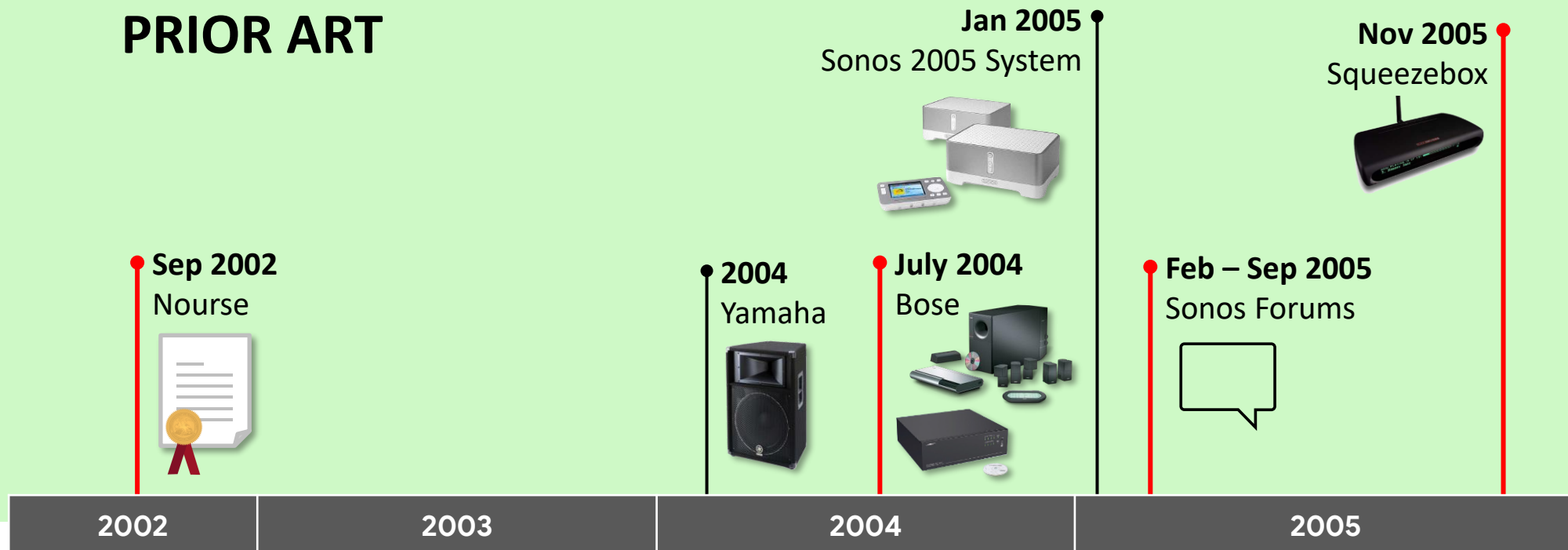
If you answered “Yes” to all parts of Question 3 and “Yes” to Question 1, all asserted patent claims are invalid and your work is done. Skip to the end of the Verdict Form and sign it.

# Dr. Almeroth Did Not Rebut Most of the Prior Art



**Dan Schonfeld**  
Technical Expert

## PRIOR ART



SONOS



**Kevin Almeroth**  
Technical Expert

UNREBUTTED

UNREBUTTED

UNREBUTTED

UNREBUTTED

# Examiner Took Official Notice That Saving Groups For Later Was Obvious



While DME does not explicitly teach the inclusion, exclusion, etc. of particular enumerated first, second, etc. players of the set of available players to form, create, save, recall etc. a particular first, second, etc. grouping Examiner takes official notice that the grouping and sub-grouping of a constellation of audio players to include or disclude particular players from an operational set was well known in the art before the effective filing date of the instant invention and would have been an obvious inclusion. The DME system enables the practice of the claimed

TX0004 at 4577



# Examiner Found Yamaha DME Disclosed Saving Zone Scenes For Later



and would have been an obvious inclusion. The DME system enables the practice of the claimed subject matter without undue experimentation and as such grouping of playback device and channels thereon would have been obvious as a matter of routine experimentation over the course of normal operation by the average skilled practitioner upon the DME interface to create, save and recall various configurations including and/or excluding the particular enumerated playback devices.

TX0004 at 4577

# Sonos Admitted That Yamaha DME Disclosed Saving Zone Scenes For Later

## SONOS

device groups can be changed as required.” *Id.* at p. 281 (emphasis added). Thus, DME Scenes can be configured/stored/recalled within a given DME device group that is already established—but the DME Manual does not suggest that recalling a DME Scene can re-group individual devices into different DME device groups.

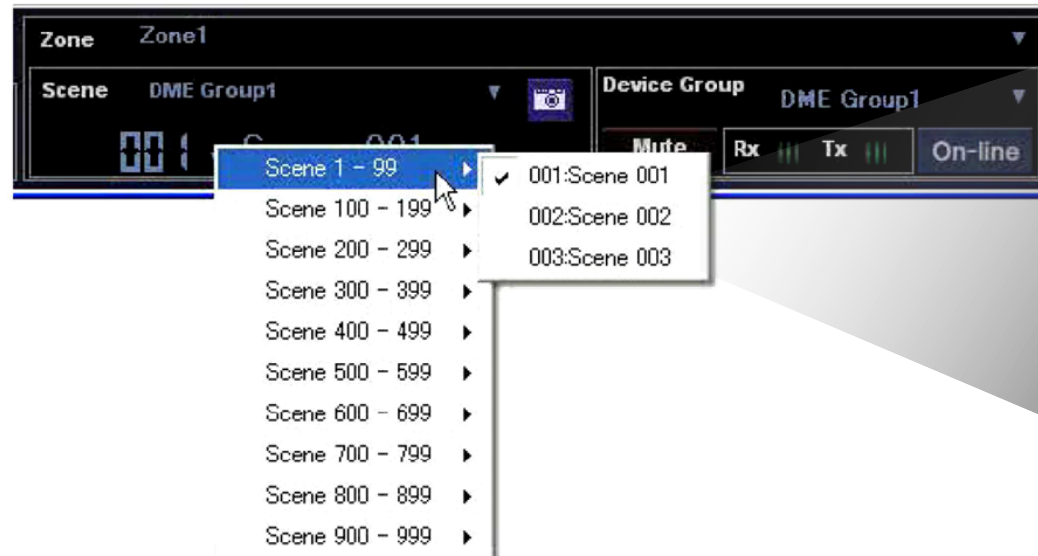
TX0004 at 823

# Yamaha DME Prior Art Disclosed Storing Up To 999 Zone Scenes



## ■ [Scene Number]

Displays the number of the current scene or scene link. A list where you can select a scene or scene link is displayed when you press the [▼]. The EDIT indicator will light when a parameter has been edited after recalling or storing a scene.



✓ 001:Scene 001  
002:Scene 002  
003:Scene 003

# Bose Prior Art Disclosed Overlapping Zone Groups

**BOSE**

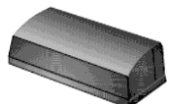
## Linking rooms for common control

There are two ways to link rooms in order to control them as one.

- Set up a shared source in two or more rooms and select them together using the ROOM button. See "Setting up a shared source" above.
- Link all connected rooms using the HOUSE button. See "Using the HOUSE button" on page 43.

## Returning to single-room control

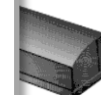
After you have gained control of multiple rooms using the ROOM button, you can use the ROOM button again to gain control of a single room. Press ROOM until the room you want is displayed (**A**, **B**, **C**, or **D**). Control that room as desired.



Multi-room Interface



Personal Media Center

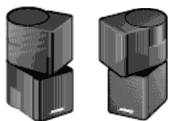


Multi-room Interface



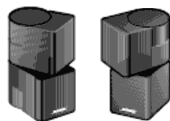
Personal Media Center

### ROOM A



Jewel Cube Speakers

### ROOM B

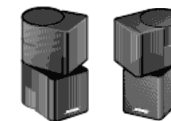


Jewel Cube Speakers

Room  
button

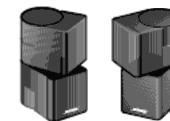
House  
button

### ROOM A



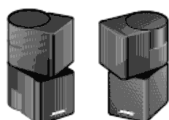
Jewel Cube Speakers

### ROOM B



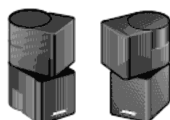
Jewel Cube Speakers

### ROOM C



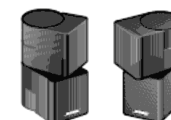
Jewel Cube Speakers

### ROOM D



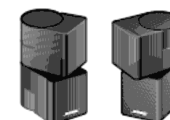
Jewel Cube Speakers

### ROOM C



Jewel Cube Speakers

### ROOM D



Jewel Cube Speakers

TX6000 at 7, 10, 44

# Examiner Found That Bose Prior Art Had Party Mode



interruption. Bose displays static groupings of media players attached as "rooms" and the rooms may be individually activated and individually configured for delivery of a synchronous media and/or grouped into a party mode where all rooms synchronously deliver a common media. As such Bose does not allow

TX0006 at 5850

# Nurse Prior Art Disclosed Storing Overlapping Groups

Each of the plurality of speakers 152 preferably has a unique 16-bit address. Each of the plurality of speakers 152 can further be assigned up to four group identifiers (IDs), allowing as many as 255 possible group assignments for the plurality of speakers 152 for each of the four groups. The

or as part of a group. Thus, each remote speaker and each group are capable of receiving unique content specific, respectively, to the individual remote speaker address and group address.

TX6513

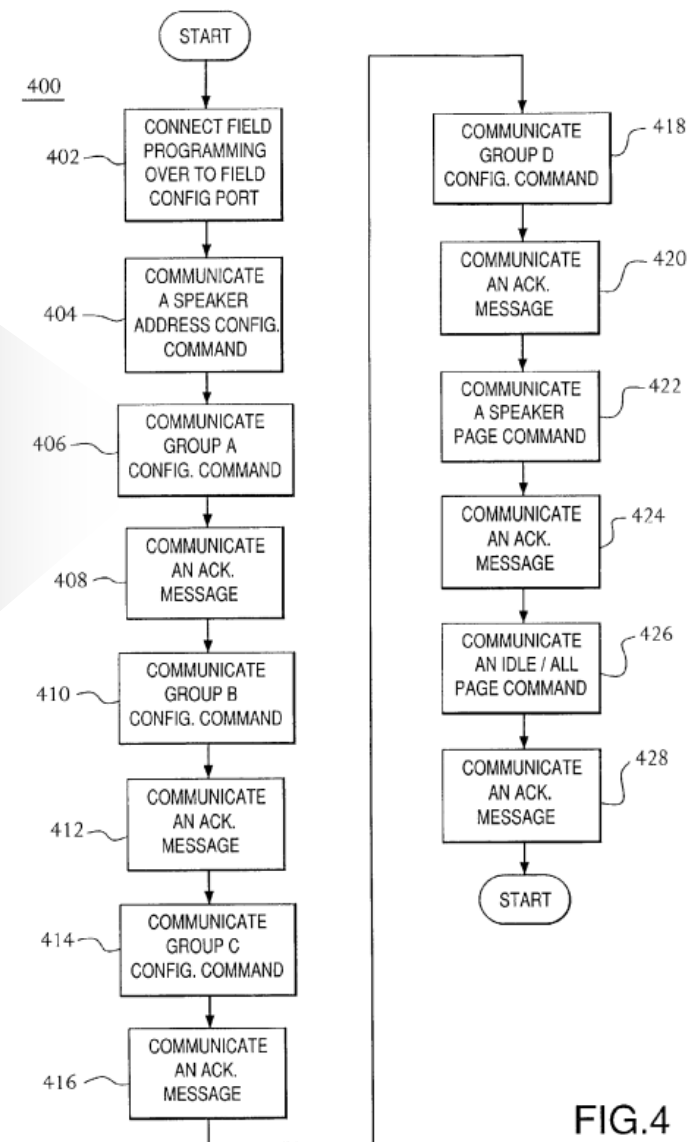
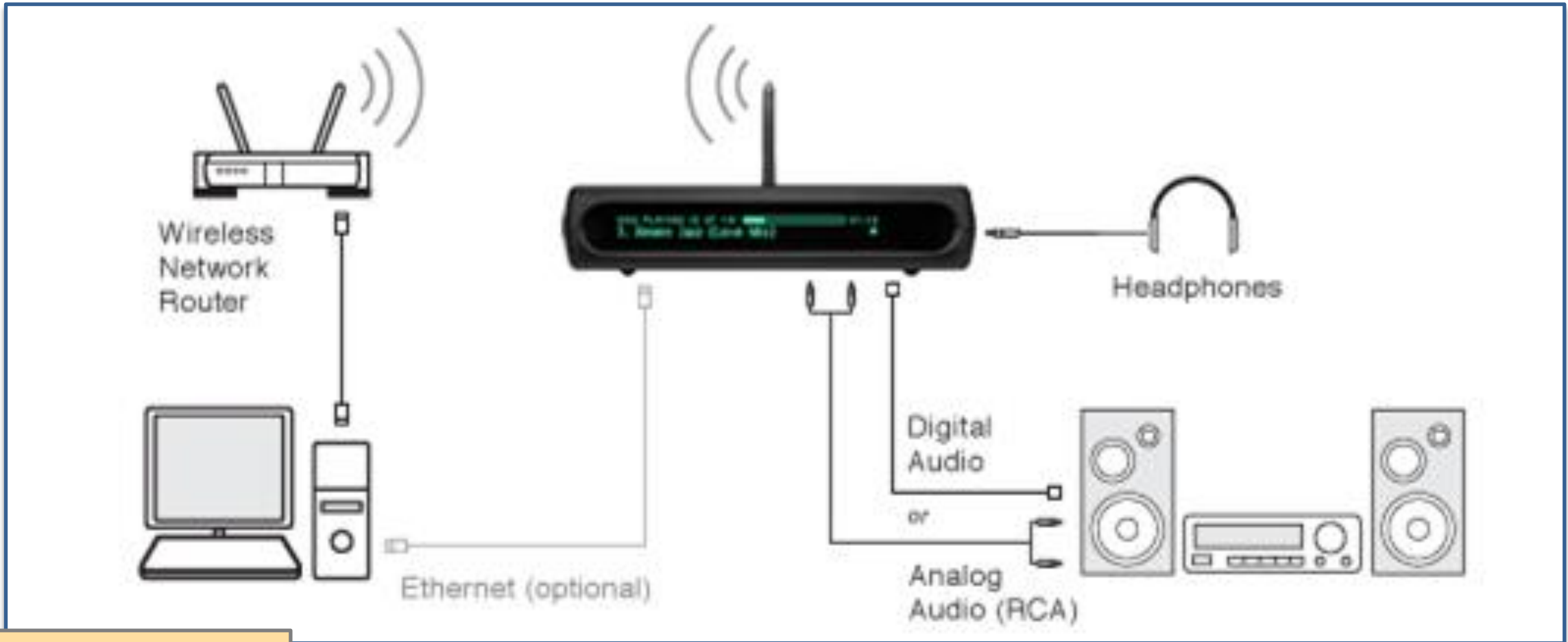


FIG. 4

# Squeezebox Prior Art Disclosed Storing Overlapping Zone Scenes

squeezebox™



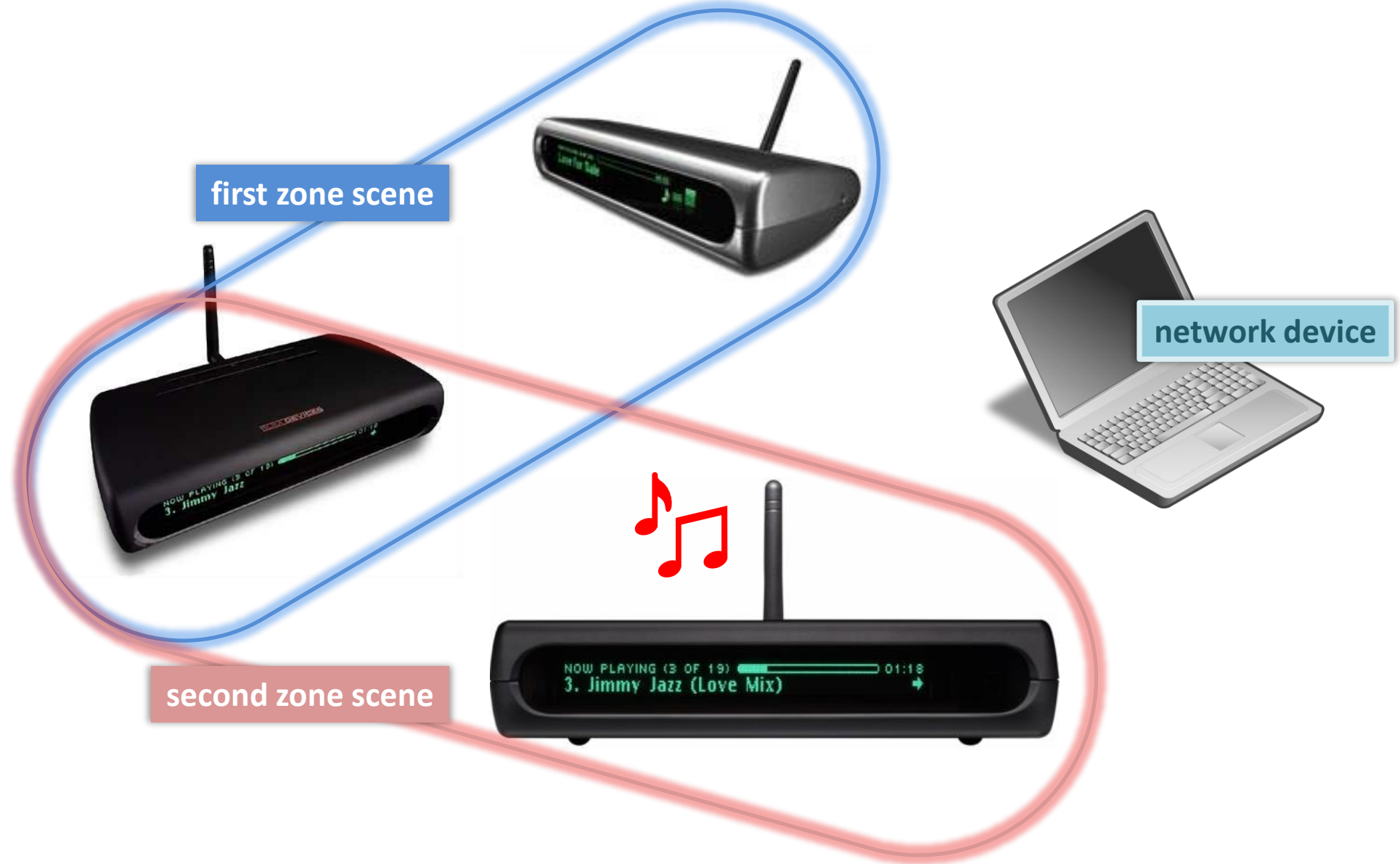
TX3808 at 61



# Squeezebox Prior Art Disclosed Storing Overlapping Zone Scenes



**Dan Schonfeld**  
Technical Expert



# Squeezebox Prior Art Disclosed Storing Overlapping Zone Scenes



**Dan Schonfeld**  
Technical Expert

```
[vmuser@slimserver2 ~]$ grep -P 'playername|syncgroup|syncPower|power\b'
/etc/slimserver.conf
19:1e:67:04:72:30-playername = player2
19:1e:67:04:72:30-power = 0
19:1e:67:04:72:30-syncPower = 0
bc:2a:ae:6b:ab:ce-playername = player3
bc:2a:ae:6b:ab:ce-power = 0
bc:2a:ae:6b:ab:ce-syncPower = 0
bc:2a:ae:6b:ab:ce-syncgroupid = 361890235
db:3a:52:e6:70:6b-playername = player1
db:3a:52:e6:70:6b-power = 1
db:3a:52:e6:70:6b-syncPower = 0
db:3a:52:e6:70:6b-syncgroupid = 361890235
```

player1

361890235

```
[vmuser@slimserver1 ~]$ grep -P 'playername|syncgroup|syncPower|power\b'
/etc/slimserver.conf
19:1e:67:04:72:30-playername = player2
19:1e:67:04:72:30-power = 0
19:1e:67:04:72:30-syncPower = 0
19:1e:67:04:72:30-syncgroupid = 675042355
bc:2a:ae:6b:ab:ce-playername = player3
bc:2a:ae:6b:ab:ce-power = 0
bc:2a:ae:6b:ab:ce-syncPower = 0
db:3a:52:e6:70:6b-playername = player1
db:3a:52:e6:70:6b-power = 1
db:3a:52:e6:70:6b-syncPower = 0
db:3a:52:e6:70:6b-syncgroupid = 675042355
```

player1

675042355

Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 235 of 283

# Dr. Schonfeld Proved That '885 Claim 1 Is Invalid



**Dan Schonfeld**  
Technical Expert

	Sonos 2005 + POSITA	Sonos 2005 + Sonos Forums	Sonos 2005 + Nourse	Sonos 2005 + Squeezebox
1.0	✓	✓	✓	✓
1.1	✓	✓	✓	✓
1.2	✓	✓	✓	✓
1.3	✓	✓	✓	✓
1.4	✓	✓	✓	✓
1.5	✓	✓	✓	✓
1.6	✓	✓	✓	✓
1.7	✓	✓	✓	✓
1.8	✓	✓	✓	✓
1.9	✓	✓	✓	✓
1.10	✓	✓	✓	✓

Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 236 of 283

# Dr. Schonfeld Proved That '966 Claim 1 Is Invalid



**Dan Schonfeld**  
Technical Expert

	Sonos 2005 + POSITA	Sonos 2005 + Sonos Forums	Sonos 2005 + Nourse	Sonos 2005 + Squeezebox
1.0	✓	✓	✓	✓
1.1	✓	✓	✓	✓
1.2	✓	✓	✓	✓
1.3	✓	✓	✓	✓
1.4	✓	✓	✓	✓
1.5	✓	✓	✓	✓
1.6	✓	✓	✓	✓
1.7	✓	✓	✓	✓
1.8	✓	✓	✓	✓
1.9	✓	✓	✓	✓
1.10	✓	✓	✓	✓
1.11	✓	✓	✓	✓

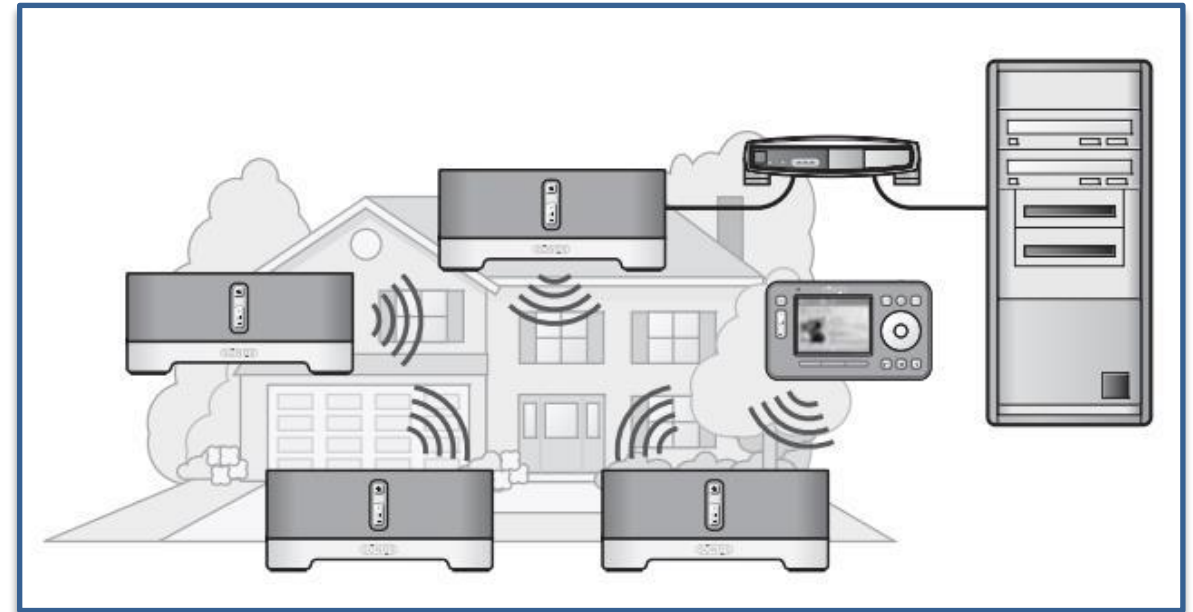
# Dr. Schonfeld Proved That All '966 Dependent Claims Are Invalid



**Dan Schonfeld**  
Technical Expert

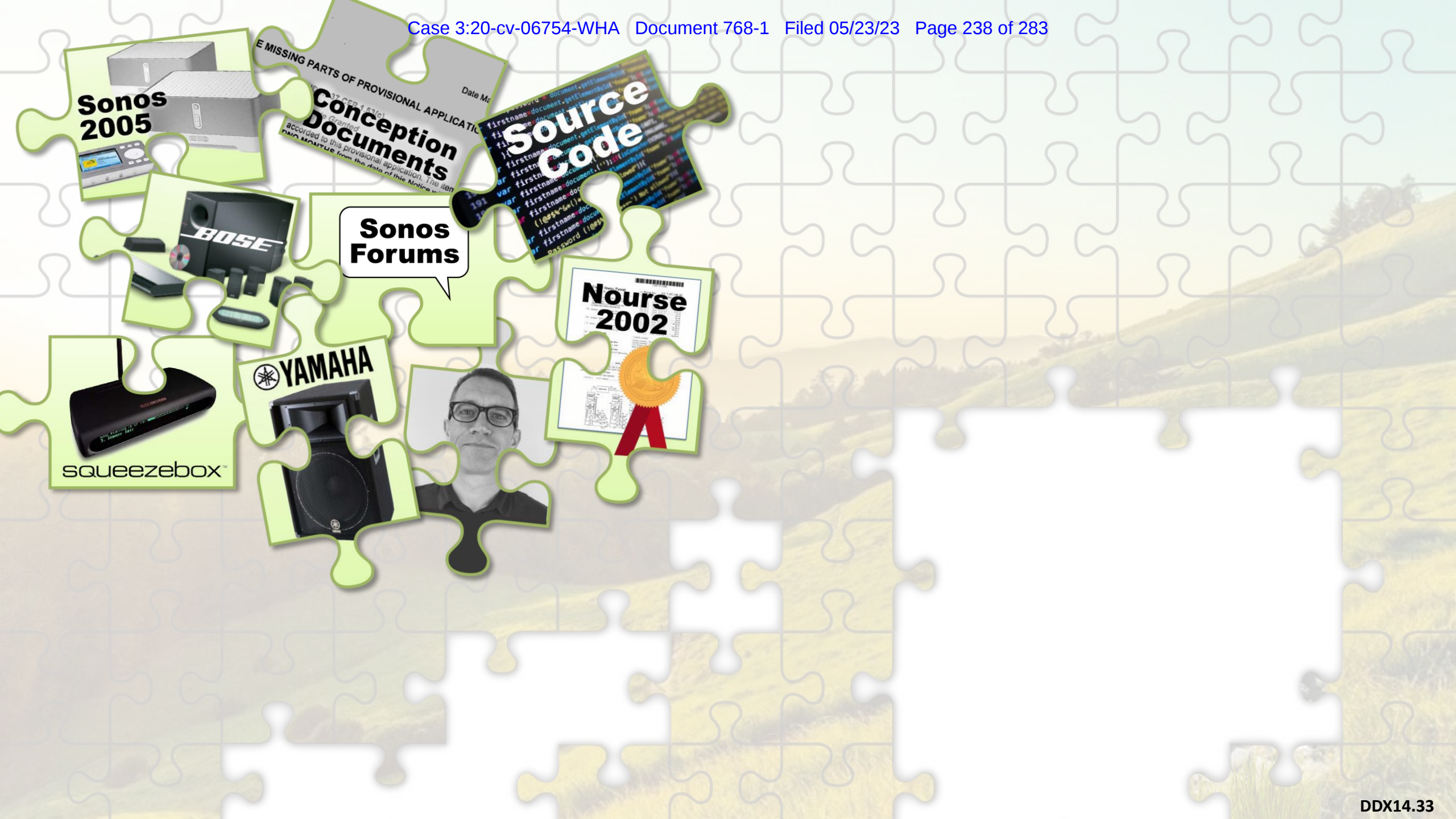
## Sonos 2005 + POSITA

2.0	✓
2.1	✓
2.2	✓
3	✓
4	✓
6	✓
8	✓



TX0062 at 6











# Dr. Almeroth Failed to Present Any Secondary Considerations of Non-Obviousness



**Kevin Almeroth**  
**Technical Expert**

- 2020 news coverage no link to overlapping zone scenes
- Non-prior art forum posts in 2016 only show perceived lack of value of alleged invention and 15-year delay by Sonos

# 2006 Non-Prior Art Forum Posts Confirm Expectation of Success



Majik

15 years ago

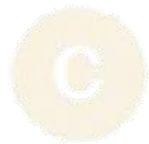
I think it would be reasonable to limit it to, say, 32 zone groups.

Cheers,

Keith

TX2425 at 4

# 2016 Non-Prior Art Forum Posts Confirm Expectation of Success



ChewyWaffles • 1 reply

5 years ago

Wow, I'm greatly disappointed that this wasn't a basic feature right out of the gate. I just got my second Play1 and planned on getting a third to group them up in interesting ways, but I am rethinking this. This reeks of lack of competition that this hasn't been implemented.

👍 Like

” Quote

TX6958 at 5

**The Patents Are Not Infringed**

# Jury Instructions On Infringement

## Jury Instruction #29:

If, however, the accused product is missing even one requirement of the asserted claim, the accused product does not directly infringe that claim.

## Jury Instruction #34:

If there is no direct infringement by anyone, there can be no induced infringement. As with direct infringement, you must determine induced infringement on a claim-by-claim basis.

In order to be liable for inducing infringement, Google must:

- (1) Have intentionally taken action that actually induced infringement;
- (2) Have been aware of the '966 patent; and
- (3) Have known that the acts it was causing would infringe the patent.

## Jury Instruction #35:

A “common component suitable for non-infringing use” is a component that has uses other than as a component of the patented product, and those other uses are not occasional, farfetched impractical, experimental, or hypothetical.

# Sonos's Claims Are Written As An All-Or-Nothing Test



## While operating in drive mode:



Checking mirrors



Checking blind spot



Using turn signal



Yielding the right-of-way



Observing pedestrians



Following speed limit

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# Both '885 and '966 Patents Require "Operating In a Standalone Mode"

## '885 Patent, Claim 1

**[1.5]** while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

**[1.6]** (i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

**[1.7]** (ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

**[1.8]** after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

## '966 Patent, Claim 1

**[1.4]** while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually:

**[1.5]** receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked;

**[1.6]** based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

**[1.7]** receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

**[1.8]** based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone scene;

**[1.9]** displaying a representation of the first zone scene and a representation of the second zone scene; and



# New Products: No “Operating In Standalone Mode” When Invoking Group

1. A first zone player comprising:  
a network interface that is configured to communicatively couple the first zone player to at least one data network;  
one or more processors;  
a non-transitory computer-readable medium; and  
program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the first zone player to perform functions comprising:

while operating in a standalone mode in which the first zone player is configured to play back media individually in a networked media playback system comprising the first zone player and at least two other zone players:

(i) receiving, from a network device over a data network, a first indication that the first zone player has been added to a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; and

(ii) receiving, from the network device over the data network, a second indication that the first zone player has been added to a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the second zone player is different than the third zone player;

after receiving the first and second indications, continuing to operate in the standalone mode until a given one of the first and second zone scenes has been selected for invocation;

after the given one of the first and second zone scenes has been selected for invocation, receiving, from the network device over the data network, an instruction to operate in accordance with a given one of the first and second zone scenes respectively comprising a given one of the first and second predefined groupings of zone players; and

based on the instruction, transitioning from operating in the standalone mode to operating in accordance with the given one of the first and second predefined groupings of zone players such that the first zone player is configured to coordinate with at least one other zone player in the given one of the first and second predefined groupings of zone players over a data network in order to output media in synchrony with output of media by the at least one other zone player in the given one of the first and second predefined groupings of zone players.

- “*Operating in standalone mode*” = continuous output of media
- Examiner and Dr. Schonfeld *agree*
- *No dispute* that new products **do not output** any media when request to invoke a group is received

'885 Patent, Claim 1



# New Products: No “Operating In Standalone Mode” When Invoking Group

1. A computing device comprising: one or more processors;

a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second zone player that are to be configured for synchronous playback of media when the first zone scene is invoked; based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third zone player that are to be configured for synchronous playback of media when the second zone scene is invoked, wherein the third zone player is different than the second zone player;

based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone

scene; displaying a representation of the first zone scene and a representation of the second zone scene; and while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

- “*Operating in standalone mode*” = continuous output of media
- Examiner and Dr. Schonfeld *agree*
- *No dispute* that new products **do not output** any media when request to invoke a group is received



'966 Patent, Claim 1

# Sonos Added “Operating In Standalone Mode” To Get Around Yamaha DME

**SONOS**

DME Manual does not teach

while operating in a standalone mode

## CLAIM AMENDMENTS

while operating in a standalone mode in which the first zone player is configured to play back media individually in [[of]] a networked media playback system[[,]] comprising the first zone player and at least two other zone players:

instant invention and would have been an obvious inclusion.” *Id.* Applicant respectfully disagrees, and submits that the DME Manual does not teach at least:

“while operating in a standalone mode in which the first zone player is configured to play back media individually...;

TX0006 at 4102, 4087



# Examiner: “Operating In Standalone Mode” = Continuous Output of Media

when a scene is invoked

does not allow for continuous output of media

## *Reasons for Allowance*

The following is an examiner’s statement of reasons for allowance: the prior art does not reasonably teach the subject matter of the independent claims. Particularly while DME operates to accomplish playback of selected media in synchrony on a selected set of first, second, etc. playback devices when a scene is invoked upon said set of players, DME does not allow for continuous output of media on a particular playback device and joining of the continuous output by a selected playback device or set thereof in synchrony with media currently playing back upon the particular playback device. That is, the prior art enables the selection of a device or group for synchronized playback of



TX0006 at 5850

 **YAMAHA**  
Yamaha DME Manual



# Google Does Not Infringe For the Same Reason as Yamaha DME



**Ken Mackay**  
Google Software  
Engineer

Q. So, Mr. MacKay, with respect to the **StopCurrentApp** function, that function causes a player that's actively playing audio to stop playing audio when it's added to a new static group; is that correct?

A. It not only stops playing audio, it actually kills the entire app.

**UNDISPUTED**



Music **STOPS** before  
group is invoked

Transcript at 1282:25-1283:5

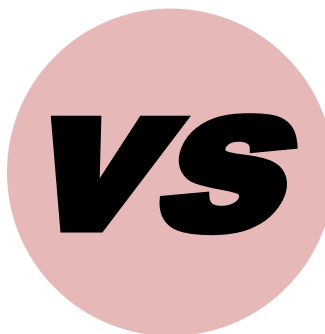


# Patent Examiner & Dr. Schonfeld vs. Dr. Almeroth

**“while operating in a standalone mode”**



**Kevin Almeroth**  
Technical Expert

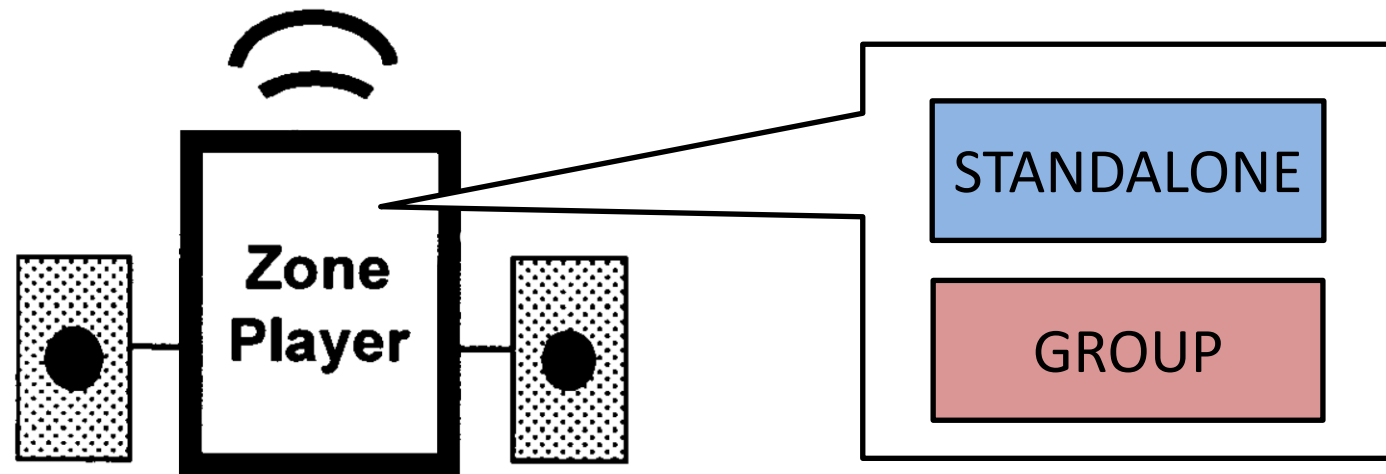


**Dan Schonfeld**  
Technical Expert



Kevin Almeroth  
Technical Expert

A. But the reality is the claim talks about two modes: You're **either in group mode** where you're synchronized to play in group mode **or** you're not, you're **in standalone mode**.



Transcript at 1282:25-1283:5



## Dr. Almeroth: No Infringement If Group Is Invoked In Mode Other Than Standalone Mode



**Kevin Almeroth**  
Technical Expert

- Q. And if the jury were to agree with Google and Dr. Schonfeld that this invocation step or functionality in the new design for the Google product is happening in a mode other than standalone mode, if the jury agrees with that, then you would agree that there is no infringement of claim 1 of the '885 patent for the new design; correct?
- A. I think if they agree with Dr. Schonfeld, then there's not going to be infringement for the redesign.

Transcript at 986:15-22

# New Products: Group Is Invoked In Idle Mode, Not Standalone Mode



**Ken Mackay**  
Google Software  
Engineer

Q. And is that launch or invocation of a group occurring when the speaker is in standalone mode?

A. No.

Q. What mode of operation are all the speakers that you're adding to the group in when you're launching a group for music playback?

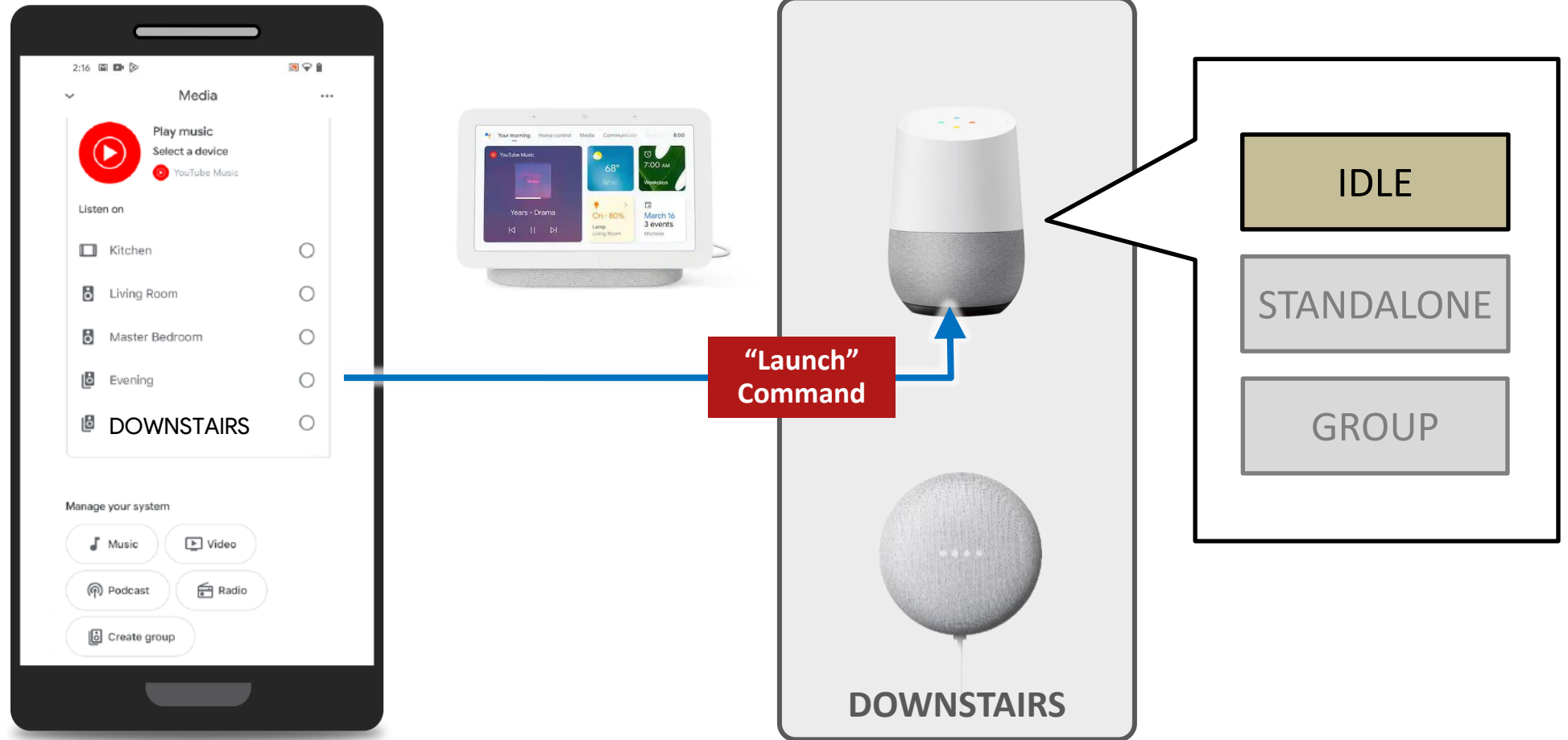
A. They would be in idle mode.

Transcript at 1258:8-14

# New Products: Group Is Invoked In Idle Mode, Not Standalone Mode

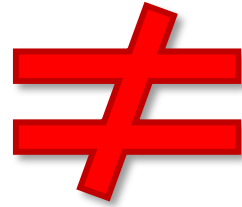


**Ken Mackay**  
Google Software  
Engineer

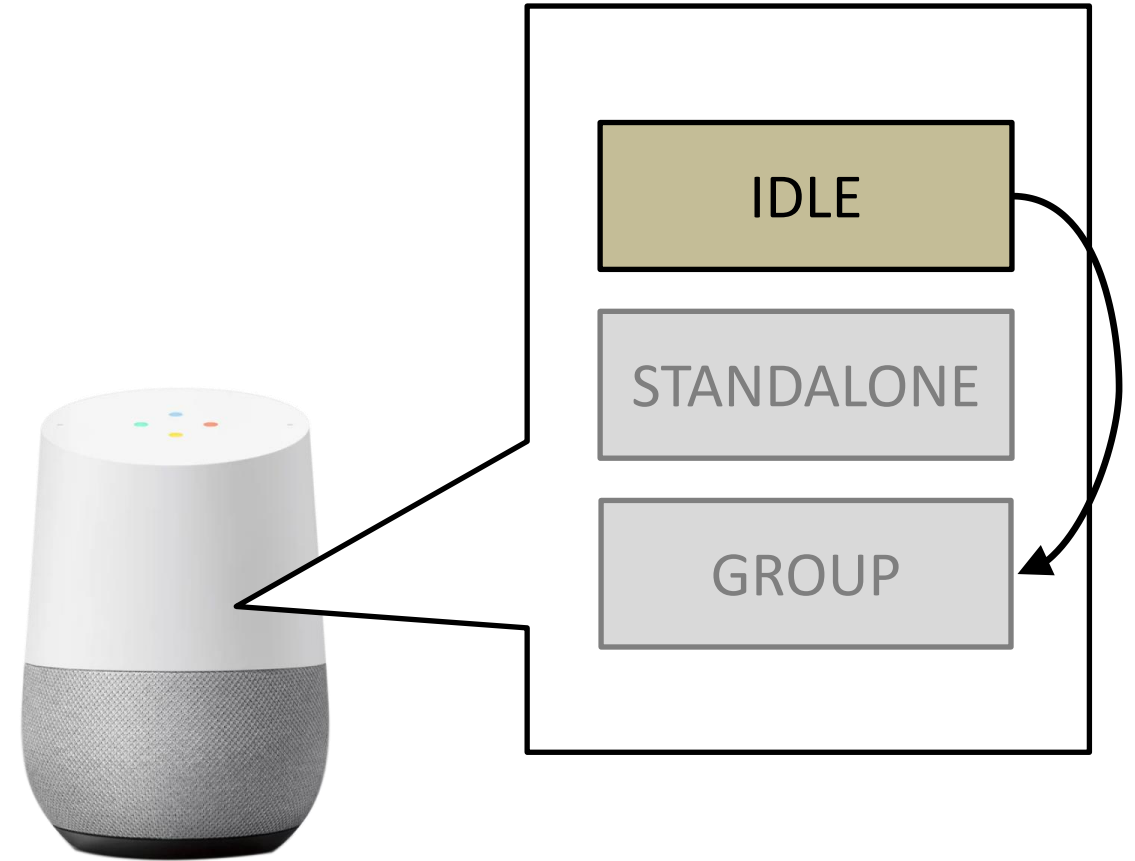
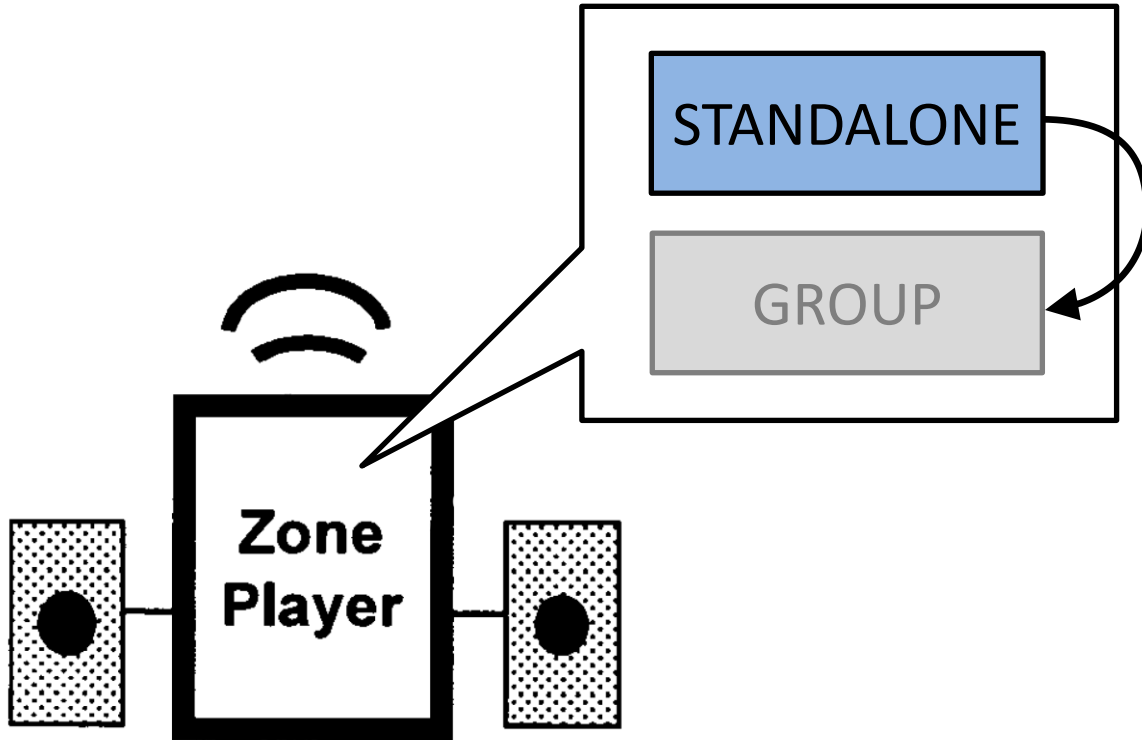


# New Products Do Not Infringe '885 and '966 Patents

**SONOS**



**Google**



Case 3:20-cv-06754-WHA Document 768-1 Filed 05/23/23 Page 258 of 283

# Google's New Products Do Not Infringe Claim 1 of '885 Patent



Dan Schonfeld  
Technical Expert

Q. Do the Google new design products invoke or launch group mode when they're still operating in standalone mode?

A. No. You have to leave operation in standalone mode before you can launch or invoke any particular group in synchrony. You cannot do it in the new design while operating in standalone mode.

Q. Does that mean there's no infringement of any of the asserted claims for the new design?

A. In my view, there is no infringement of any of the asserted claims, no.



Transcript at 1366:24-1367:9

# '966 Patent: Dr. Almeroth Accused Home Apps Without Any Speakers



Kevin Almeroth  
Technical Expert

Q. So given that, Dr. Almeroth, how many devices would be required to infringe claim 1 of the '966 patent?

A. Just one device as long as it had the program instructions required of the claims.

\* \* \*

Q. If there are no speakers connected to the network to the phone, you cannot physically form two overlapping groups of speakers; correct?

A. You won't use that source code if there aren't the speakers to group.

Transcript at 766:25-767:3, 1687:15-19

# Jury Instruction #28: Home App Cannot Infringe Without At Least Three Speakers



*First*, with respect to the '966 accused products, I have determined that the mere installation of the Google Home app on a computing device does not itself infringe. The claim language does not recite any functions to be performed by the accused products unrelated to those computing devices “serving as a controller.” Significantly, a computing device is not capable of serving as a controller unless it is networked with at least three zone players that may be added to overlapping zone scenes. Until, if ever, a computing device with the Google Home app installed is networked with at least three zone players that may be added to overlapping zone scenes using the Google Home app, it cannot fall within the claims of the '966 patent. And Google is not capable of infringing unless a computing device is networked with at least three zone players that may be added to overlapping scenes using the Google Home app. I instruct you that only computing devices networked with at least three zone players that may be added to overlapping zone scenes using the Google Home app qualify for consideration.



# Court's Construction of "Zone Scene" Requires "Previously-Saved Grouping"



Claim Term	Sonos Patents	Court's Construction
"zone scene"	'885 Patent '966 Patent	"a <u>previously-saved grouping</u> of zone players according to a common theme"
"indication that the first zone player has been added to a zone scene"	'885 Patent	"indication from the network device that the [first] zone player has been added <del>by the user</del> to a zone scene"

# All Products: No “Causing Storage” Of Zone Scenes For Later Invocation

1. A computing device comprising: one or more processors;

a non-transitory computer-readable medium; and program instructions stored on the non-transitory computer-readable medium that, when executed by the one or more processors, cause the computing device to perform functions comprising:

while serving as a controller for a networked media playback system comprising a first zone player and at least two other zone players, wherein the first zone player is operating in a standalone mode in which the first zone player is configured to play back media individually;

receiving a first request to create a first zone scene comprising a first predefined grouping of zone players including at least the first zone player and a second

zone player that is to be used for playback of media; **causing storage of the first zone scene**

based on the first request, i) causing creation of the first zone scene, ii) causing an indication of the first zone scene to be transmitted to the first zone player, and iii) causing storage of the first zone scene;

receiving a second request to create a second zone scene comprising a second predefined grouping of zone players including at least the first zone player and a third

zone player that is to be used for playback of media; **causing storage of the second zone**

invoked, wherein the second zone player, based on the second request, i) causing creation of the second zone scene, ii) causing an indication of the second zone scene to be transmitted to the first zone player, and iii) causing storage of the second zone

scene; displaying a representation of the first zone scene and a representation of the second zone scene; and while displaying the representation of the first zone scene and the representation of the second zone scene, receiving a third request to invoke the first zone scene; and

based on the third request, causing the first zone player to transition from operating in the standalone mode to operating in accordance with the first predefined grouping of zone players such that the first zone player is configured to coordinate with at least the second zone player to output media in synchrony with output of media by at least the second zone player.

- **“Causing storage of” zone scenes = causing persistent storage of group membership for later invocation**
- All products **do not store group membership for later playback**



'966 Patent, Claim 1

# Google Developed Innovative Non-Infringing ACA Technology



**Ken Mackay**  
Google Software  
Engineer

Q. So in this ACA technology, is there a need to store actual grouping or membership information of the speakers at the time the group is created so that later you can use it to play music on a group?

A. No. We only store the ID and name.

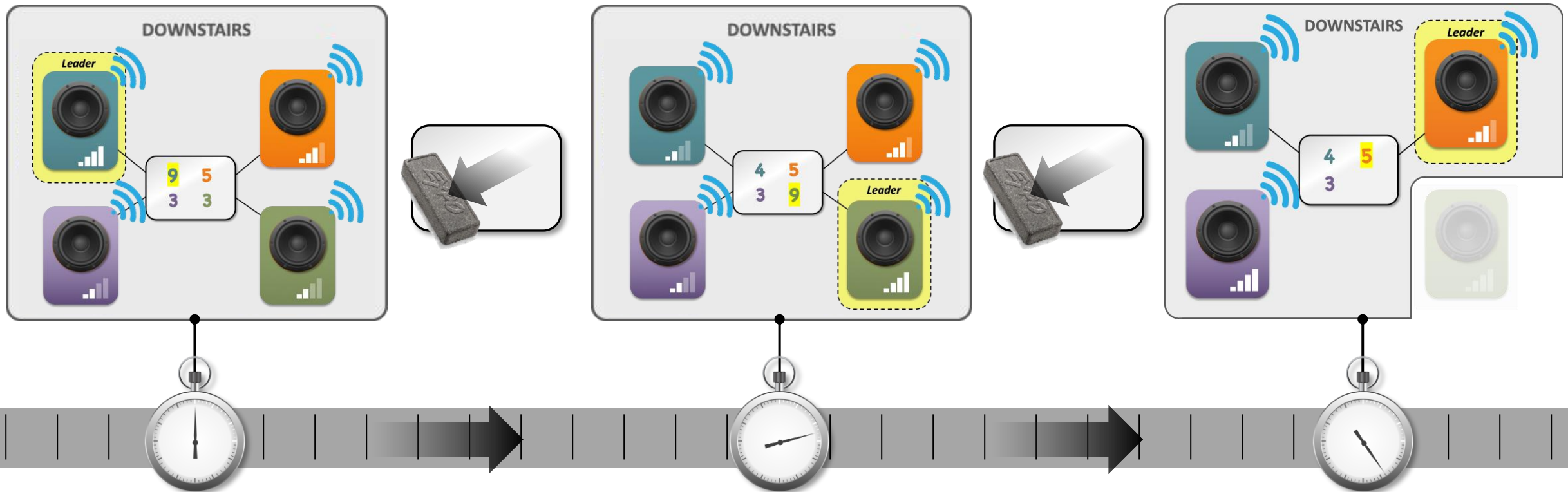
**UNDISPUTED**



Transcript at 1253:24-1254:3

# Google's ACA: Only Uses Current Group Leader For Playback

## Adaptive Continuous Automatic



# Google Speakers: No Membership Information Is Stored For Later Playback



**Ken Mackay**  
Google Software  
Engineer

Q. Does that random string ID contain any information about the actual grouping or the identity of members of a group?

A. No, it doesn't contain information about the identity of the members.

Q. The next is "Name." Do you see that?

A. Yes.

Q. What is that indicating?

A. That's the name that the user assigned to the group.

Q. And, again, does that name contain any information about the actual grouping or membership information of a group?

A. No, it does not.



Transcript at 1243:23-1244:8



# Home App: No Membership Information Is Used For Later Playback



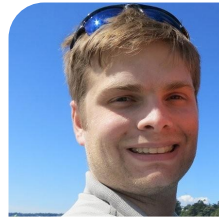
**Justin Pedro**  
Google Engineering  
Manager

- Q. The information that's kept in the cache, is that ever used to actually allow a user to play back music to a particular group?
- A. So the membership information in the cache is never used for playback purposes.

**UNDISPUTED**

Transcript at 1314:4-8

# Google's Independent & Prior Development of Speaker Group Functionality



Ken  
MacKay

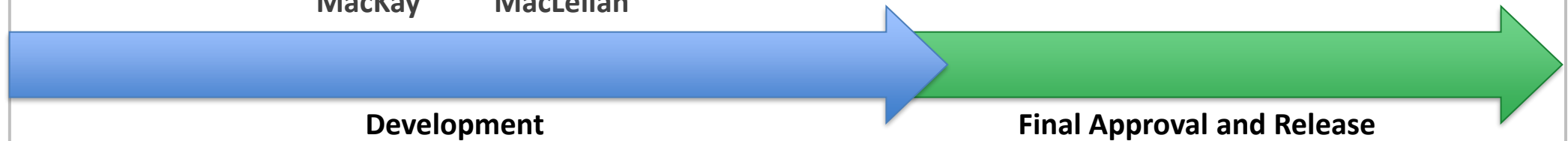


Tavis  
MacLellan



**December 2015**  
Product release

**March**



Development

Final Approval and Release

2015

- **May 8, 2015** | Source code written for "Join Group"
- **March 30, 2015** | Design doc
- **March 26, 2015** | Source Code approval
- **March 18, 2015** | Initial source code written



# March 30, 2015 | Design doc

**UNDISPUTED**

## Option 1

1. Require all group members to be present for configuration

### Cons:

- Can still result in inconsistent configuration if devices go offline during config changes.

## Option 4

4. Ad-hoc group membership

In this method of group configuration, every device knows which groups it is a member of, but does not have any a priori knowledge of other group members. Each group is

TX6454

## March 30, 2015 | Design doc

Google



**Ken Mackay**  
Google Software  
Engineer

Q. What was the **first option** that you considered for the grouping technology for Google?

A. So in this option, all of the devices in a group would have to be present whenever you change the group configuration and you would have to **store all of the group members** somewhere.

Transcript at 1239:20-24

### Option 1

1. Require all group members to be present for configuration

#### Cons:

- Can still result in inconsistent configuration if devices go offline during config changes.

TX6454

## March 30, 2015 | Design doc

Google



**Ken Mackay**  
Google Software  
Engineer

Q. A priori knowledge, can you explain to the jury what you meant by that statement?

A. So that means that devices -- each device doesn't know -- doesn't have stored information about what other members of the group exist so it doesn't know which other devices are members of that group.

Transcript at 1240:23-1241:3

### Option 4

#### 4. Ad-hoc group membership

In this method of group configuration, every device knows which groups it is a member of, but does not have any a priori knowledge of other group members. Each group is

TX6454

## March 30, 2015 | Design doc

Google



**Ken Mackay**  
Google Software  
Engineer

Q. And what did you mean by that?

A. I thought that this choice -- I thought that Option 4 had the best tradeoffs, and this is the option that we ultimately implemented.

Transcript at 1241:10-13

### Option 4

#### 4. Ad-hoc group membership

In this method of group configuration, every device knows which groups it is a member of, but does not have any a priori knowledge of other group members. Each group is

TX6454

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# Google's New & Old Products Do Not Infringe Any Claim of '966 Patent



**Dan Schonfeld**  
Technical Expert

- Q. Based on that understanding and the review of all the evidence, what is your opinion on whether the causing storage of the first zone scene, the first zone scene that you created at the time of creation, is satisfied in claim 1 of the '966 patent?
- A. So as I understand it, the first -- storage of the first zone scene would require persistent storage of the membership; and as I just mentioned, that is not done because you only store the name and the identifier of the group and, therefore, these -- these limitations are not satisfied in claim 1 of the '966 patent.



Transcript at 1373:7-17

## **Jury Instruction #38:**

To determine whether Google acted willfully, consider all facts and assess Google's knowledge at the time of the challenged conduct. Knowledge of a fact may be inferred where a party intentionally blinds itself to that fact.

Facts that may be considered include but are not limited to:

- (1) Whether or not Google acted consistently with the standards of behavior for its industry;
- (2) Whether or not Google reasonably believed its products did not infringe or that the patent was invalid at the time of infringement;
- (3) whether or not Google made a good-faith effort to avoid infringing the asserted patents; and
- (4) Whether or not Google tried to cover up its infringement.

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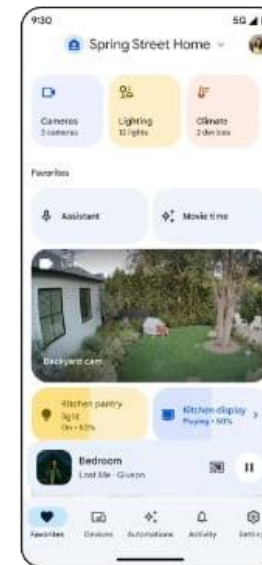
# Google Developed Its Technology Independently



**Ken Mackay**  
Software  
Engineer



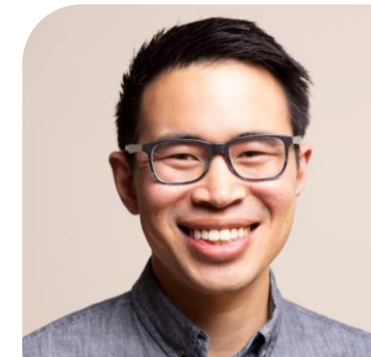
**Tavis Maclellan**  
Software  
Engineer



**Justin Pedro**  
Engineering  
Manager



**Chris Chan**  
Product  
Manager





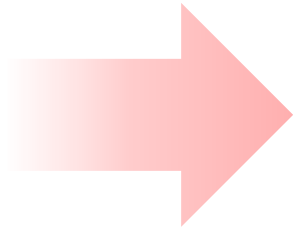
# Google's Response to Sonos's Damages Theory

## Damages Are Not Required

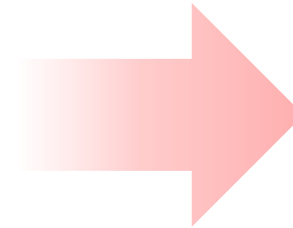
### Jury Instruction #40:

If the asserted claims of these patents are ultimately found to be invalid . . .  
Google will not have to pay money damages.

Patents **not** valid



**No infringement**



**\$0** damages

# Sonos Waited 15 Years to Implement Patented Feature



**Jan. 27, 2005**

Sonos releases  
2005 system

**Dec. 21, 2005**

Mr. Lambourne's  
conception date

**SONOS**

**June 8, 2020**

Sonos first released  
'885/'966 patented  
feature

**15-year Gap**

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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## Sonos Could Not Establish Value

### Jury Instruction #42:

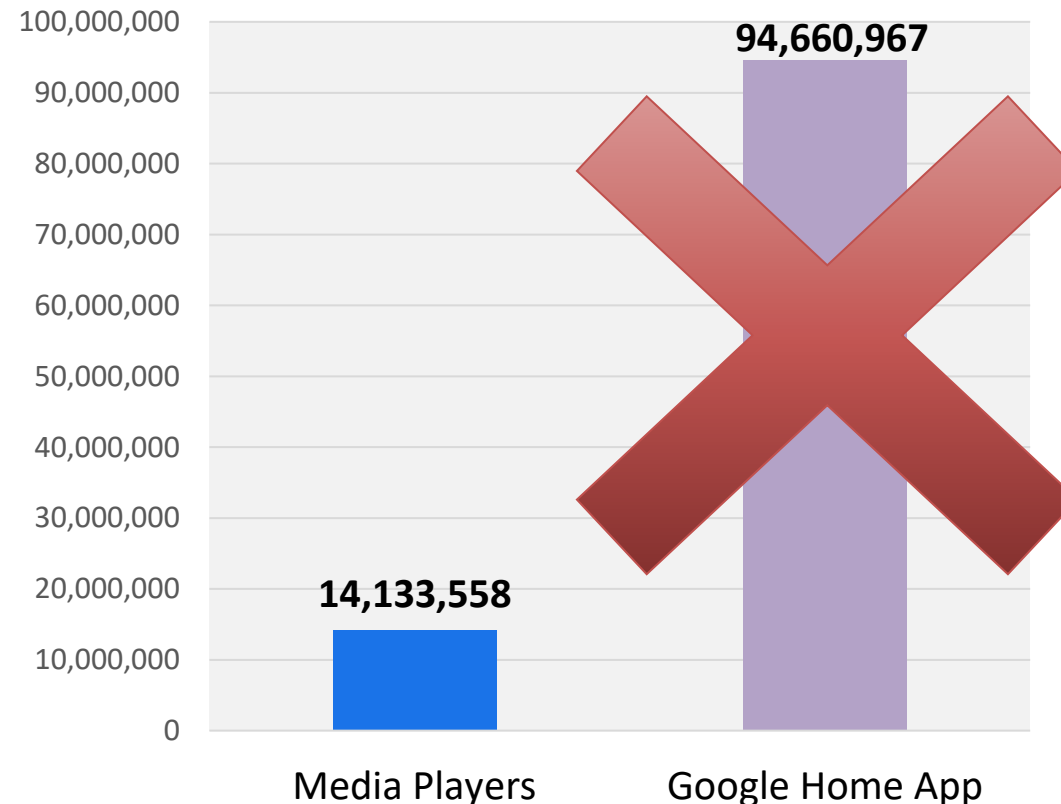
One of my functions as a judge presiding over a trial is to ensure that the evidence you considered meets the minimum requirements for admissibility. Upon further review, I have found that this testimony and theory of damages does not meet those minimum requirements. As such, I have made a ruling striking this IFTTT theory from the record. What this means is that you shall not factor in any information regarding IFTTT into your calculation of damages.



# Sonos Could Not Establish Value

## Jury Instruction #28:

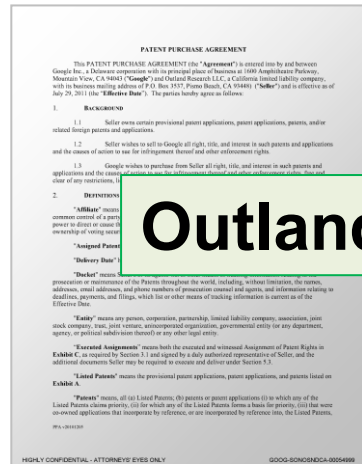
Until, if ever, a computing device with the Google Home app installed is networked with at least three zone players that may be added to overlapping zone scenes using the Google Home app, it **cannot fall within the claims of the '966 patent.**



# A Lump Sum Royalty Is Appropriate

## Jury Instruction #42:

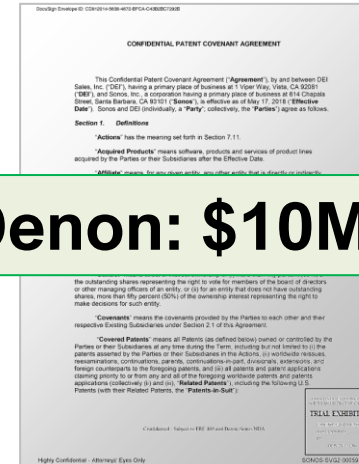
There are license agreements admitted into evidence that you may find **sufficiently comparable** and that you may use, along with other evidence of economic value, if applicable.



**Outland Research: \$2.25M**

**Purchase Agreement**

**TX6016**



**Denon: \$10M / 1,000 x 2 = \$200,000**

**License Agreement**

**TX6721**

# Sonos's Running Royalty Licenses

## Jury Instruction #42:

There are license agreements admitted into evidence that you may find **sufficiently comparable** and that you may use, along with other evidence of economic value, if applicable.

### Lenbrook (Bluesound)

Time Period	U.S. Royalty Payments
Jan 2019- Sep 2020	\$359,210
Oct 2020- Dec 2020	127,116
Jan 2021- Mar 2021	68,100
Apr 2021- Jun 2021	80,706
Jul 2021- Sep 2021	148,804
<b>Total</b>	<b>\$783,936</b>

### Legrand (Pass & Seymour)

Time Period	U.S. Royalty Payments
Jan 2019- Sep 2020	\$184,425
Oct 2020- Dec 2020	15,336
Jan 2021- Mar 2021	12,924
Apr 2021- Jun 2021	12,576
Jul 2021- Sep 2021	13,740
<b>Total</b>	<b>\$239,001</b>



# Cost to Implement NIAs Is the Appropriate Measure

## Jury Instruction #42:

There are license agreements admitted into evidence that you may find sufficiently comparable and that you may use, along with other evidence of **economic value**, if applicable.



**Christopher  
Bakewell**  
Damages Expert



**\$200,000**

**Non-infringing  
Alternative**

# Google's Rebuttal